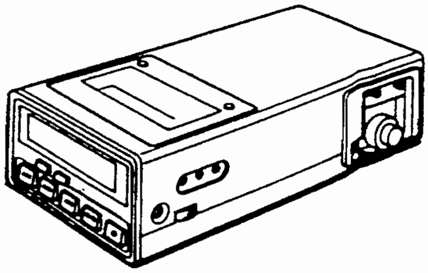
1248

S/M Code No.92 – 037 DATE OF ISSUE 3/1992 – I

aiwa

HD-S1000

SERVICE MANUAL



DIGITAL AUDIO TAPE RECORDER

- BASIC DAT MECHANISM : D – 3
- TYPE. E

SPECIFICATIONS

System

Recording system	Rotary head, Digital audio tape
Tape speed	8.15 mm/sec. (12.225 mm/sec)
Sampling frequencies	Recording: 48 kHz, 44.1 kHz. 32 kHz Playback: 48 kHz, 44.1 kHz, 32 kHz
Digitization	16-bit linear
Number of channels	2 channels (stereo)

Audio system

Frequency response	10 Hz – 22,000 Hz
Signal to noise ratio	92 dB (playback) 90 dB (recording)
Dynamic range	90 dB
Total harmonic distortion	0.009%
Wow & flutter	Under measurable limit

Input/output

Digital input	Phono jack ×1 0.5 Vp-p. input impedance 75 ohms
Digital output	Phono jack ×1 0.5 Vp-p, output impedance 75 ohms
Analog input	LINE2 IN: phono jack ×2 200 mV, input impedance 47 kohms MIC/LINE1: Cannon connector (XLR-5–32) ×1 0.5 m V (ATT 0 dB), 2.8 mV (ATT 15 dB), 15 mV (ATT 30 dB) input impedance 10 kohms (at MIC), 500 mV, input impedance 47 kohms (at LINE 1)
Analog output	LINE OUT: phono jack ×2 Maximum output level 1.2 V (RMS, 48 kHz), load impedance more than 10 kohms
PHONES jack	Stereo minijack ×1 max. 15 mW + 15 mW, EIAJ/32 ohms

Power supply and others

Power supply	6 V DC (with the supplied rechargeable battery PB-20 or PB-25) Local AC power (with the supplied AC adaptor, 7.4 V DC) 7.5 V DC (with 10 LR6 alkaline batteries)
Battery life	Rechargeable battery PB-20: approx. 40 minutes (when charged for 2 hours) (EIAJ, playback/recording) 10 LR6 alkaline batteries: approx. 3 hours (EIAJ, playback/recording)
Dimensions	100 × 57.5 × 210 mm (4 ×2$^3/_8$ × 8$^3/_8$ in.) (w/h/d)
Weight	1040 g (2 lb. 5oz) (with rechargeable battery) 1340 g (2 lb. 15oz) (with rechargeable battery and 10 alkaline batteries)
AC adaptor	
Rated voltage	AC-744: AC100 – 240 V, AC-746K, E: AC110 – 120/220 – 240 V, switchable AC-746U: AC120 V AC-748E: AC220 V
Rated input	AC-744: 34 – 49 VA, 50/60 Hz AC-746K, E: 21 W, 50/60 Hz AC-746U: 19 W, 50/60 Hz AC-748E: 19 W, 50/60 Hz
Rated output	AC-744: DC 7.4 V, 1.6 A AC-746K,E, U: DC 7.4 V, 1.1 A AC-748E: DC 7.4 V, 1.1 A
Usable batteries	AIWA rechargeable lead battery (PB-20 or PB-25)

- Design and specifications are subject to change without notice.

AIWA CO.,LTD.

Tokyo Japan

Printed in Japan

1248

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DISASSEMBLY INSTRUCTIONS – 1

1. "Battery Box ASSY" Removal (See Figure – 1)

1) Remove 5 screws (Ⓐ× 1, Ⓑ× 4) and then the "Battery Box ASSY".

Note : This state allows a continuity check of the main circuit board.

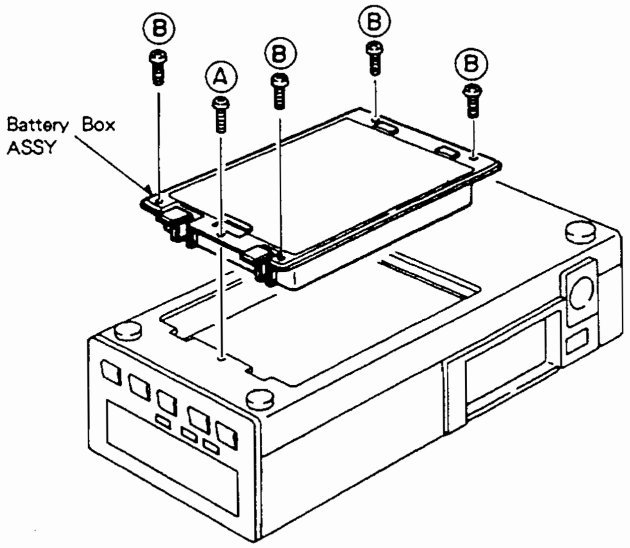

Ⓑ
Ⓑ
Ⓑ
Ⓑ
Ⓐ
Battery Box ASSY

Fig – 1

2. "Cassette Panel ASSY" and " Panel, Front 2" Removal (See Figure – 2)

1) Remove 2 screws (Ⓐ) and the "Cassette Panel ASSY" in the direction of the arrow ①.

2) Remove 4 screws (Ⓑ) and then the "Panel, Front 2".

3. "VR Panel ASSY" and "Cannon Jack" Removal (See Figure – 2)

1) Remove 4 screws (Ⓒ× 2, Ⓓ× 2) and then the "VR Panel ASSY".

2) Remove 2 screws (Ⓔ) and then the "Cannon Jack".

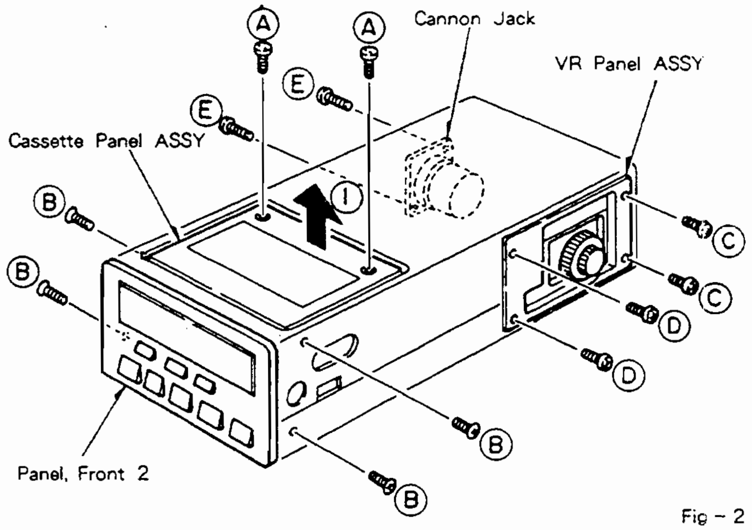

Ⓐ
Ⓐ
Cannon Jack
VR Panel ASSY
Ⓔ
Ⓔ
Cassette Panel ASSY
①
Ⓑ
Ⓑ
Ⓒ
Ⓒ
Ⓓ
Ⓓ
Ⓑ
Ⓑ
Panel, Front 2

Fig – 2

4. "Panel, Battery" and "Panel, Top K" Removal (See Figure – 3)

1) Remove 3 screws (Ⓐ× 2, Ⓑ× 1) and then the "Panel, Battery".

2) Remove 4 screws (Ⓒ) and then the "Panel, Top K" in the direction of the arrow ②.

NOTE : Before removing "Panel, Top K", insert a sheet between "Panel, Top K" and "Lid, Battery" as shown in the figure to prevent damage to the "Lid, Battery".

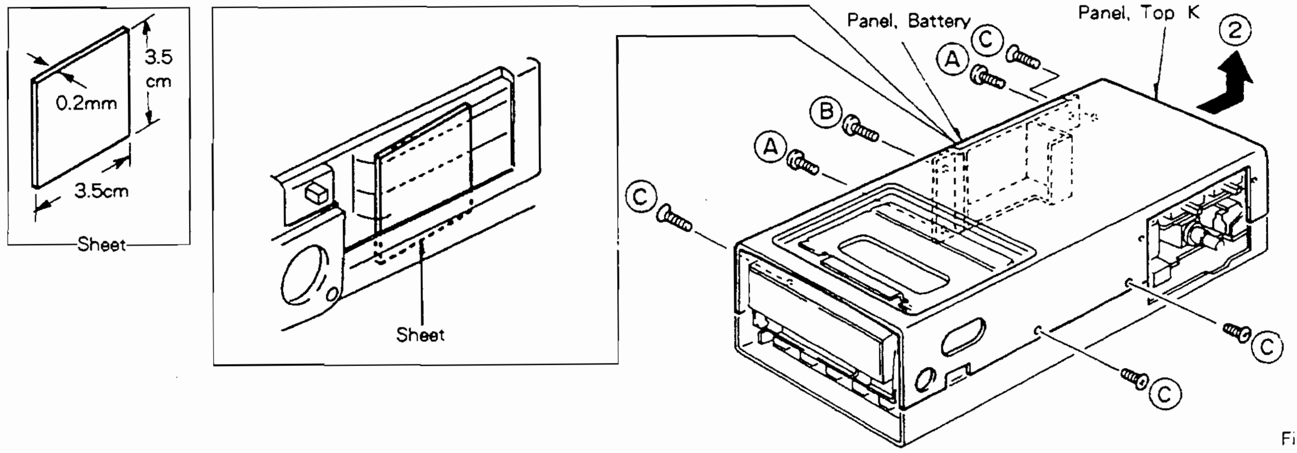

3.5 cm
0.2mm
3.5cm
Sheet
Sheet
Panel, Battery
Panel, Top K
②
Ⓐ
Ⓒ
Ⓒ
Ⓑ
Ⓐ
Ⓒ
Ⓒ
Ⓒ

Fig – 3

5. "Main Unit" Removal (See Figure – 4)

1) Remove screw (Ⓐ) and then the "Main Unit" in the direction of the arrow ①

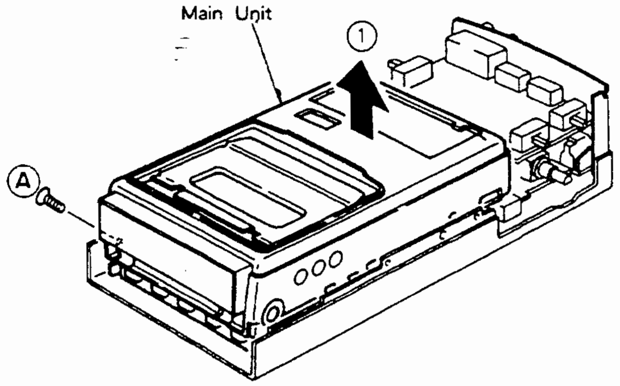


Fig – 4

6. "MD ASSY" Removal (See Figure – 5 and – 6)

1) Remove 2 screws (Ⓐ) (See Figure – 5)

2) Remove 2 screws (Ⓑ) on the "Main C.B". (See Figure – 6)

3) Insert a "Sheet" as shown in the figure. (See Figure – 6)

4) While pushing the "Cassette Box ASSY" with both thumbs as shown in the figure, remove the "MD ASSY" in the direction of the arrow. (See Figure – 6)

Caution : Be sure to insert a sheet as shown in the figure when removing and reinstalling the "MD ASSY". Otherwise the screen and the "LCD of the MD ASSY" could touch each other, damaging the "LCD". (See Figure – 6)

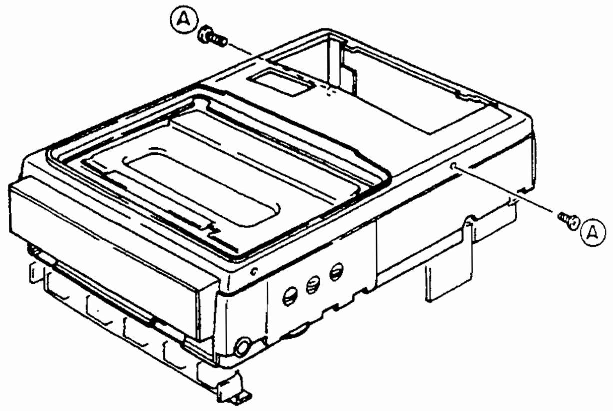


Fig – 5

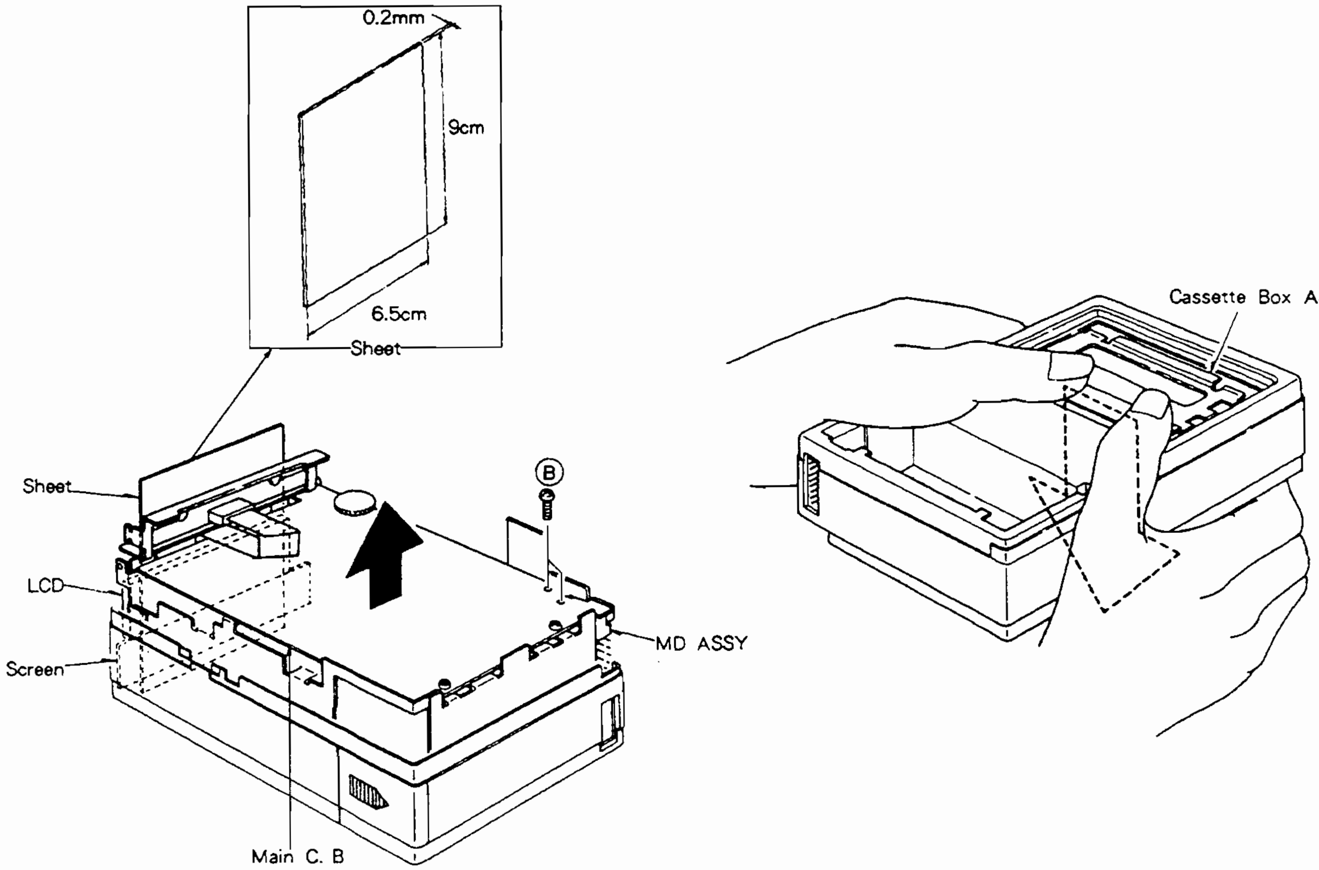

0.2mm
9cm
6.5cm
Sheet
Sheet
LCD
Screen
Ⓑ
MD ASSY
Main C. B
Cassette Box ASSY

Fig – 6

7. "Main C.B" Removal (See Figure – 7)

1) Remove 2 screws (Ⓐ) and then "Chassis Front".
2) Remove 1 screw (Ⓑ) and then the "Sub C.B".
3) Unsolder point ⓐ of the "Shield Sheet".
4) Remove 4 screws (Ⓒ× 3, Ⓓ× 1), disconnect 6 connectors and then remove the "Main C.B".

Caution 1 : The "RF C.B" and "Main C.B" are connected by a connector, disconnect it so that the two boards are not damaged.

Caution 2 : Since the flexible circuit board is liable to be cut, be sure to disconnect 6 connectors before removing the "Main C.B".

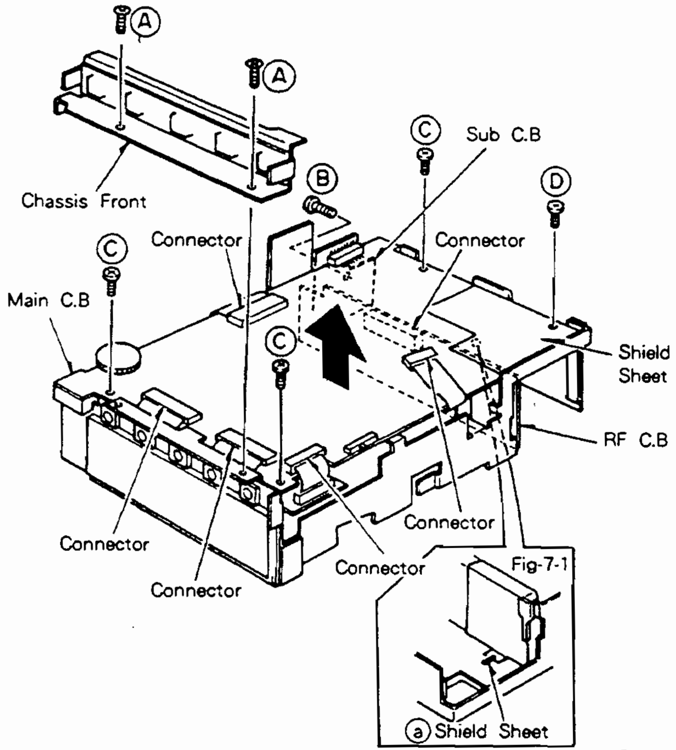

Ⓐ
Ⓐ
Chassis Front
Ⓑ
Ⓒ Sub C.B
Ⓓ
Ⓒ Connector
Connector
Main C.B
Ⓒ
Shield Sheet
RF C.B
Connector
Connector
Connector
Connector
Fig-7-1
ⓐ Shield Sheet

Fig – 7

8. "Mechanism ASSY" Removal

1) Unsolder the "Shield Sheet" and then disconnect the CON3. (See Figure – 8)
2) Remove 2 screws (Ⓐ) and then the "RF C.B". (See Figure – 8)
3) Remove 2 screws (Ⓑ) and then "two RECOG SWs". (See Figure – 8)
4) Remove 4 screws (Ⓒ) and then the "Mechanism ASSY" in the direction of the arrow ①. (See Figure – 8)

Caution : Be careful of the wires in each section when removing the "Mechanism ASSY". Push the "Eject Lever of Chassis ASSY L" in the direction of the arrow ② and hold it, then remove the "Mechanism ASSY". (See Figure – 9)

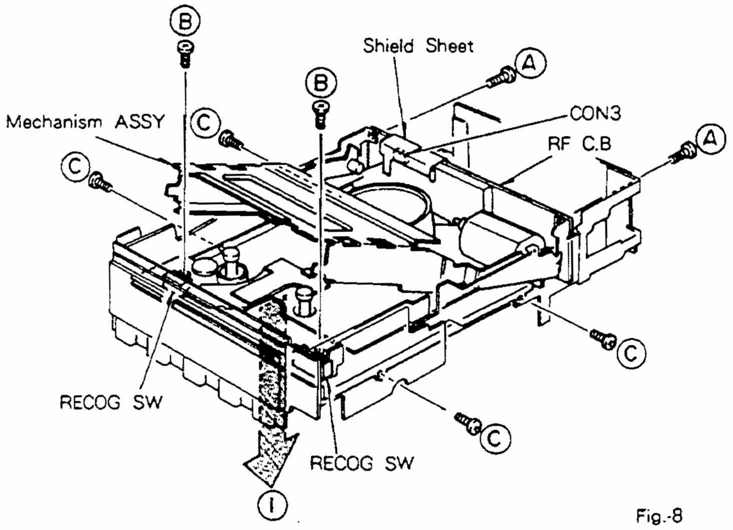

Ⓑ
Shield Sheet
Ⓐ
Ⓑ
Mechanism ASSY
Ⓒ
CON3
RF C.B
Ⓐ
Ⓒ
Ⓒ
RECOG SW
Ⓒ
RECOG SW
①

Fig.-8

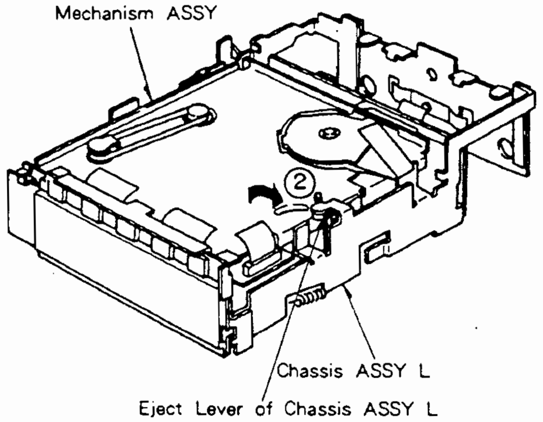
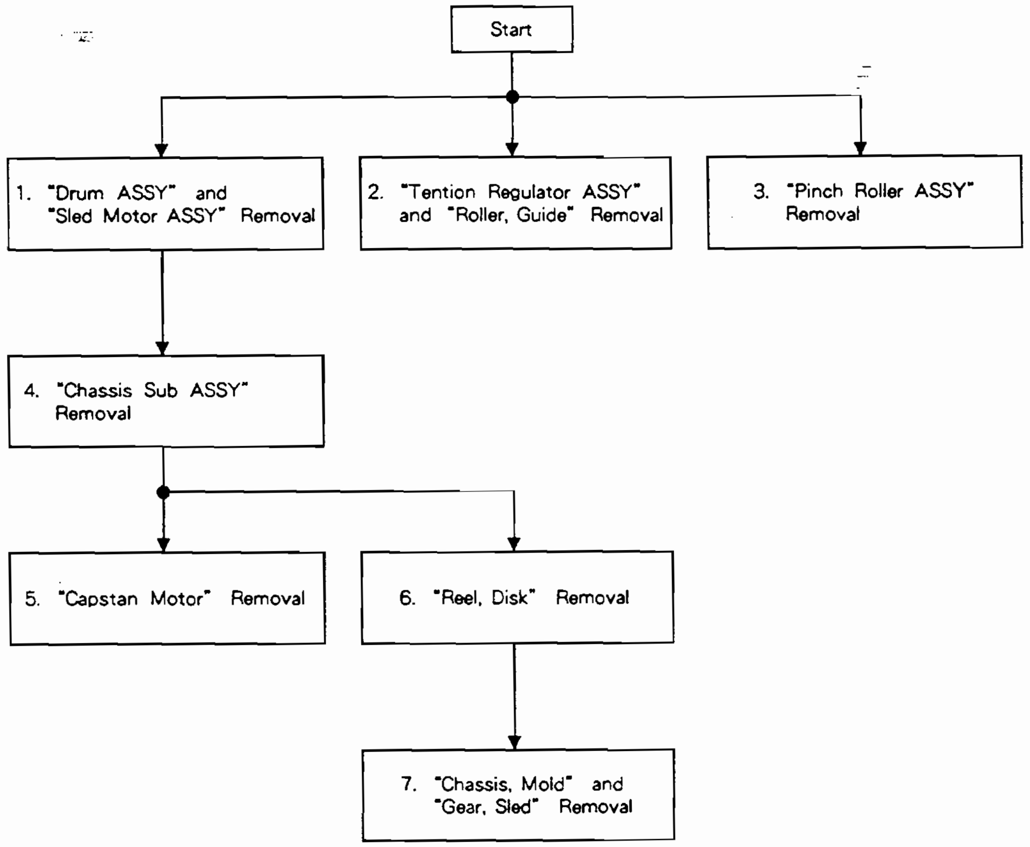

Mechanism ASSY
②
Chassis ASSY L
Eject Lever of Chassis ASSY L

Fig – 9

DISASSEMBLY INSTRUCTIONS – 2 (MECHANISM SECTION)


Start
1. "Drum ASSY" and "Sled Motor ASSY" Removal
2. "Tention Regulator ASSY" and "Roller, Guide" Removal
3. "Pinch Roller ASSY" Removal
4. "Chassis Sub ASSY" Removal
5. "Capstan Motor" Removal
6. "Reel, Disk" Removal
7. "Chassis, Mold" and "Gear, Sled" Removal

1. "Drum ASSY" and "Sled Motor ASSY" Removal

(See Figure – 1)

1) Remove 3 (Ⓐ) screws and the "Drum ASSY".

Note) Align the components in sections A, B and C as shown in the figure when attaching the "Drum ASSY".

2) Remove (Ⓑ) screw and the "Sled Motor ASSY".

Note) Fix the "Sled Motor ASSY" with bond.

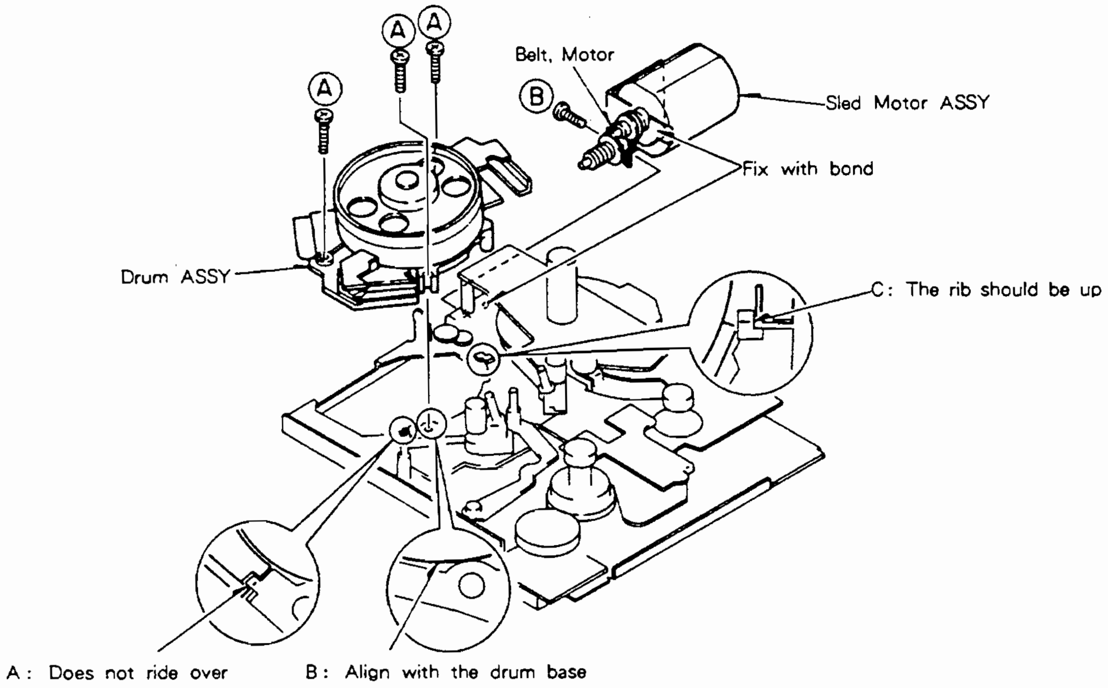

Ⓐ Ⓐ
Ⓐ
Belt, Motor
Ⓑ
Sled Motor ASSY
Fix with bond
Drum ASSY
C: The rib should be up
A : Does not ride over
B : Align with the drum base

Fig – 1

2. "Tension Regulator ASSY" and "Roller, Guide" Removal

(See Figure – 2)

1) Remove screw (Ⓐ) and PW (Ⓑ), then remove the "Tension Regulator ASSY".

Note 1) Be careful that the "T-Spring, Tension Regulator" is also removed when the "Tension Regulator ASSY" is removed.

Note 2) Install the "T-Spring, Tension Regulator" as shown in Figure – 2 – 1, release it from point ⓐ, and then reinstall it as shown in Figure – 2 – 2.

2) Remove the "Flanges, UL and LT Guide" using a screwdriver, etc. and then remove the "Roller, L Guide" and "Roller, Lever Guide".

3) Remove 2 (Ⓓ) screws and use a screwdriver, etc. to remove the "Rollers, Guide" of the "Shuttle ASSY T and S"

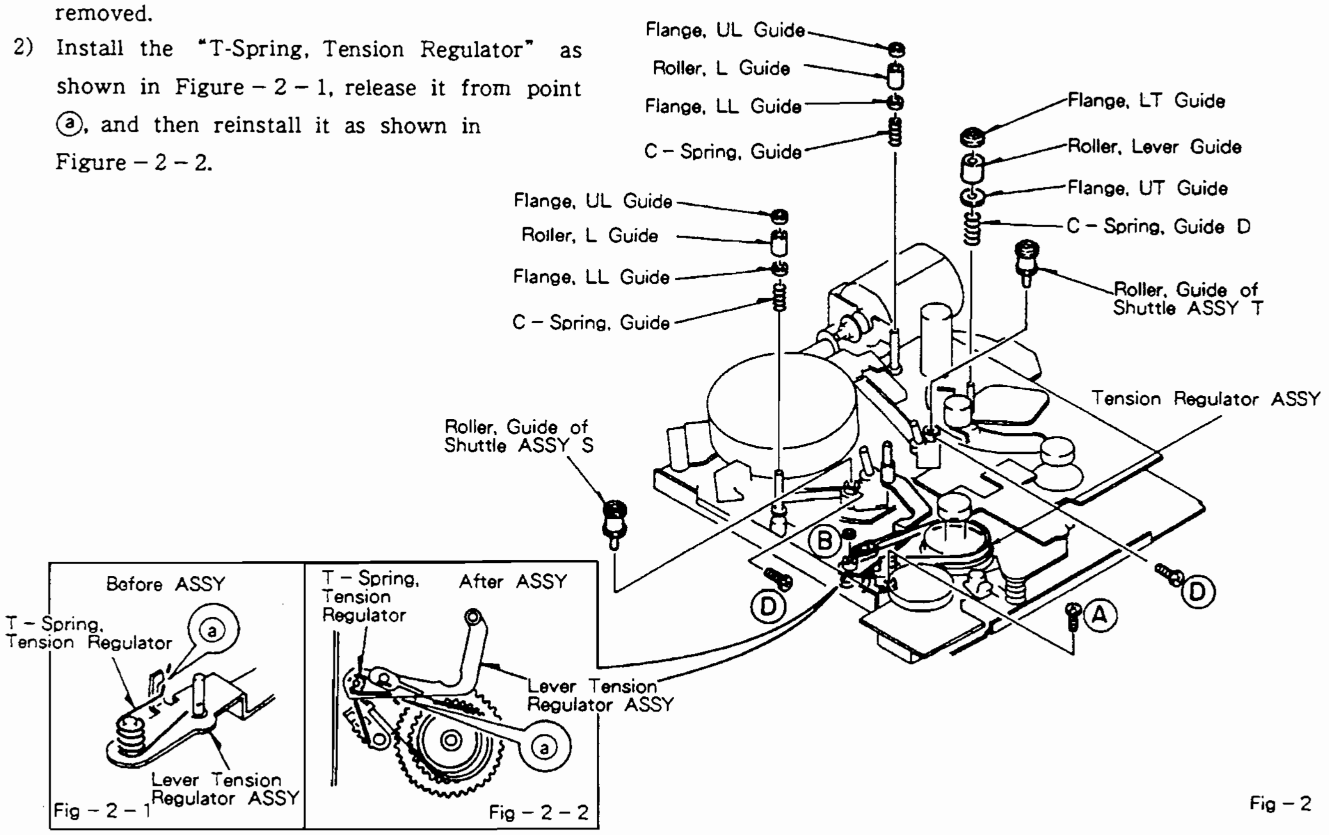

Flange, UL Guide
Roller, L Guide
Flange, LL Guide
C – Spring, Guide
Flange, LT Guide
Roller, Lever Guide
Flange, UT Guide
C – Spring, Guide D
Flange, UL Guide
Roller, L Guide
Flange, LL Guide
C – Spring, Guide
Roller, Guide of Shuttle ASSY T
Tension Regulator ASSY
Roller, Guide of Shuttle ASSY S
Ⓑ
Ⓓ
Ⓐ
Ⓓ
Before ASSY
T – Spring, Tension Regulator
ⓐ
Lever Tension Regulator ASSY
Fig – 2 – 1
T – Spring, Tension Regulator
After ASSY
Lever Tension Regulator ASSY
ⓐ
Fig – 2 – 2

Fig – 2

3. "Pinch Roller ASSY" Removal (See Figure – 3)

1) Hold the "Pinch Lever ASSY" by one hand and pull out the "Pinch Roller ASSY" with the other hand in the direction of the arrow, then remove the "Pinch Roller ASSY" and "Collar, Pinch Roller B" at the same time.

Note 1) Be careful that the shaft of the "Pinch Roller ASSY" is not bent.

Note 2) Do not re-use "Collar, Pinch Roller B"

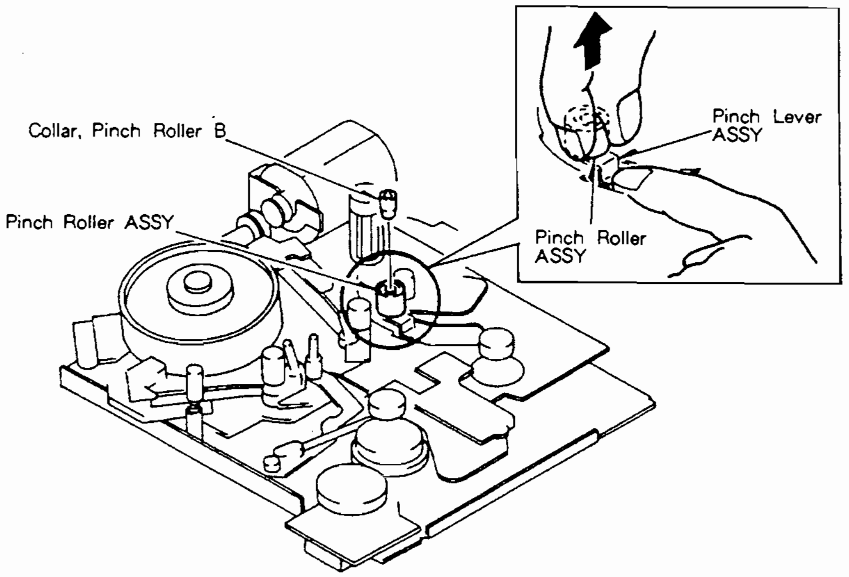

Collar, Pinch Roller B
Pinch Roller ASSY
Pinch Lever ASSY
Pinch Roller ASSY

Fig – 3

4. Chassis Sub ASSY" Removal (See Figure – 4)

1) Set the "Shuttle ASSY" to the Sleded end as shown in Figure – 4.

2) Remove 4 (Ⓐ) screws and the "Chassis Sub ASSY". Reinstall the "Chassis Sub ASSY", taking care of the following.

Note 1) Place the hook of the "Chassis, Mold" on the "Chassis Sub ASSY" as shown in Figure – 4 – 1.

Note 2) Align the "Idler Lever ASSY" and the hook of the "Chassis Sub ASSY" as shown in Figure – 4 – 2.

Note 3) Align the hook of the "FR Plate ASSY" and the "T Brake Lever ASSY" as shown in Figure – 4 – 3.

Note 4) Make the hook of the "Pinch Lever ASSY" come into contact with chassis as shown in Figure – 4 – 4.

Note 5) Align the "Lever Guide ASSY" and "Pinch Plate ASSY" at point ⓐ as shown in Figure – 4 – 5.

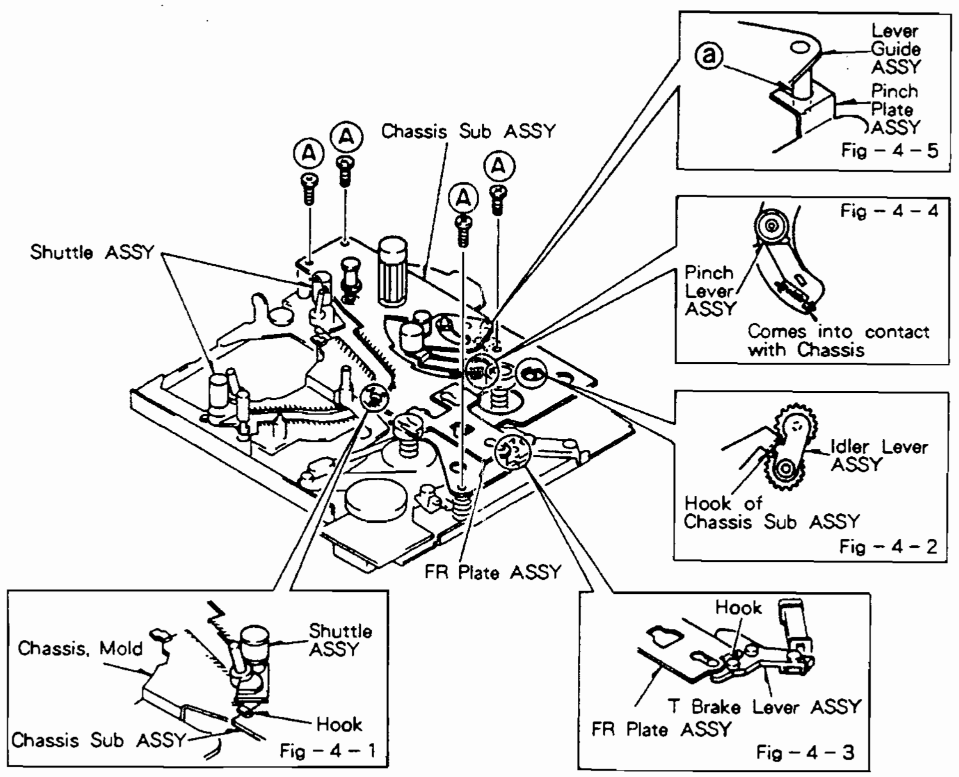

ⓐ
Lever Guide ASSY
Pinch Plate ASSY
Fig – 4 – 5
Ⓐ
Ⓐ
Chassis Sub ASSY
Ⓐ
Ⓐ
Fig – 4 – 4
Pinch Lever ASSY
Comes into contact with Chassis
Shuttle ASSY
Idler Lever ASSY
Hook of Chassis Sub ASSY
Fig – 4 – 2
FR Plate ASSY
Chassis, Mold
Shuttle ASSY
Hook
Chassis Sub ASSY
Fig – 4 – 1
Hook
T Brake Lever ASSY
FR Plate ASSY
Fig – 4 – 3

Fig – 4

5. "Capstan Motor" Removal (See Figure – 5)

1) Remove 3 (Ⓐ) screws and the "Capstan Motor".
2) Remove PW (Ⓑ) and the "Lever Guide ASSY".
3) Remove the "E-Spring, FR" and "FR Plate ASSY".
4) Remove the "T-Spring, Pinch", PW (Ⓒ) and the "Pinch Lever ASSY".
5) Reinstall the "T-Spring, Pinch" while bending it in the direction of the arrow as shown in Figure – 5 – 1.

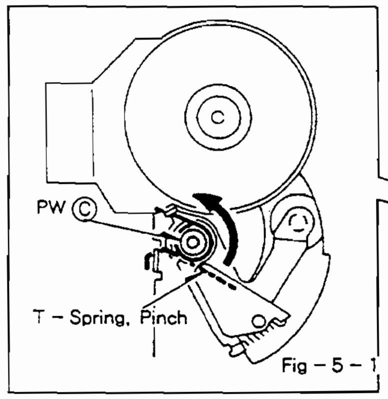

PW Ⓒ
T – Spring, Pinch

Fig – 5 – 1

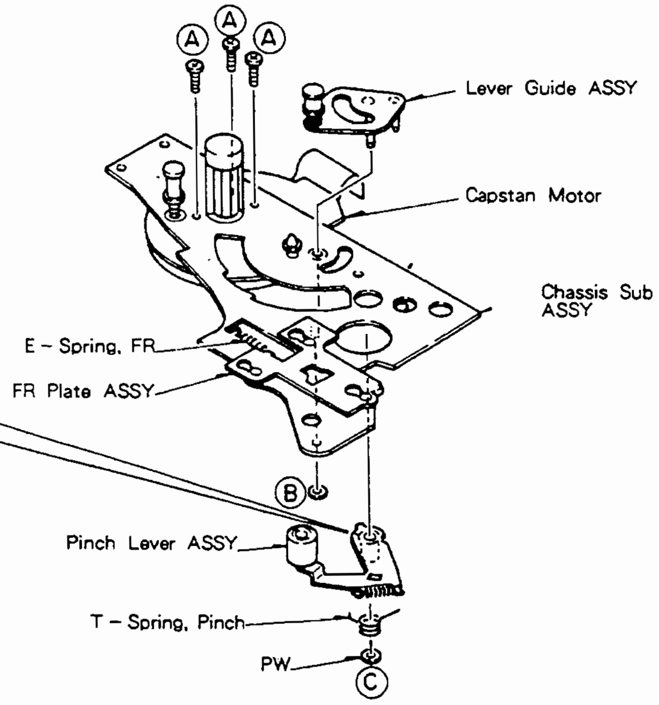

Ⓐ
Ⓐ
Ⓐ
Lever Guide ASSY
Capstan Motor
Chassis Sub ASSY
E – Spring, FR
FR Plate ASSY
Ⓑ
Pinch Lever ASSY
T – Spring, Pinch
PW
Ⓒ

Fig – 5

6. "Reel, Disk" Removal (See Figure – 6)

1) Remove E-Ring (Ⓐ) and PW (Ⓑ), then remove the "Reel, Cap", "C-Spring, Reel" and "Reel Disk ASSY".
2) Remove PW (Ⓒ), "E-Spring, Brake" and then the "S Brake Lever ASSY".
3) Remove the "T-Spring, Soft" and then the "Sled Brake Lever ASSY".

Note) Hook the "T-Spring, Soft" as shown in the figure when installing the "Sled Brake Lever ASSY".

4) Remove PW (Ⓓ) and the "FG Gear ASSY".
5) Remove E-Ring (Ⓔ) and PW (Ⓕ), then remove the "Reel, Cap", "C-Spring, Reel" and "Reel Disk S".
6) Remove PW (Ⓖ) and then the "T Brake Lever ASSY".
7) Remove PW (Ⓗ) and then the "Gear, A FF".

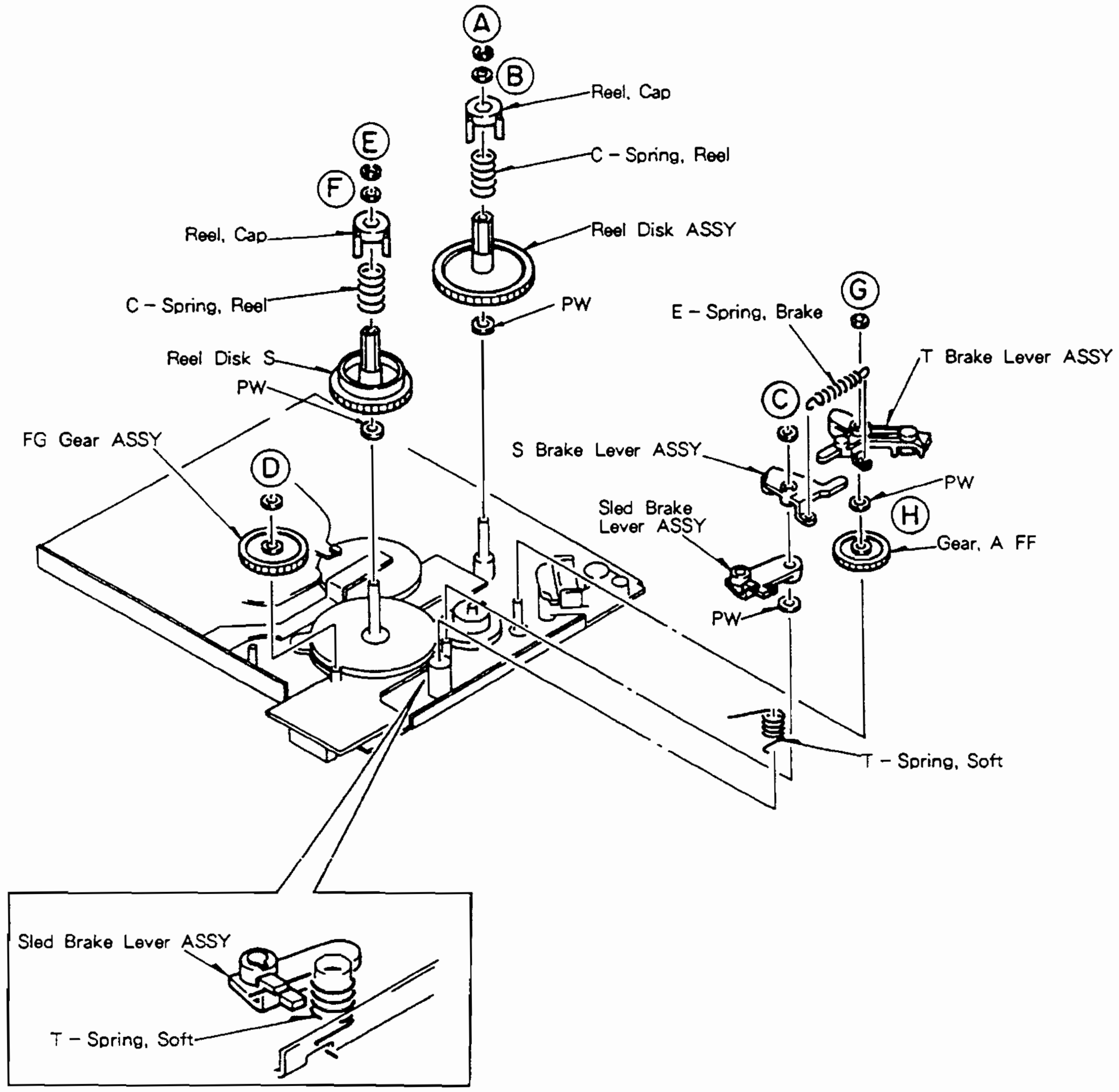

Ⓐ
Ⓑ
Reel, Cap
C – Spring, Reel
Reel Disk ASSY
PW
Ⓔ
Ⓕ
Reel, Cap
C – Spring, Reel
Reel Disk S
PW
FG Gear ASSY
Ⓓ
E – Spring, Brake
Ⓖ
T Brake Lever ASSY
Ⓒ
S Brake Lever ASSY
PW
Ⓗ
Gear, A FF
Sled Brake Lever ASSY
PW
T – Spring, Soft
Sled Brake Lever ASSY
T – Spring, Soft

Fig – 6

7. "Chassis, Mold" and "Gear, Sled" Removal (See Figure – 7)

1) While turning the "Worm Wheel" with your fingers, move the "Shuttle ASSY S and T" in the direction of the arrow ①. (See Figure – 7 – 1)
2) Remove screw (Ⓐ) and PW (Ⓑ), then remove the "Chassis, Mold".
3) Remove "Gear, Sled G".
4) Remove PW (Ⓒ) and then "Gear, Sled H".

Note) When install "Gear, Sled H" and "Gear, Sled G" so that the marks on each gear are aligned as shown in Figure – 7 – 2.

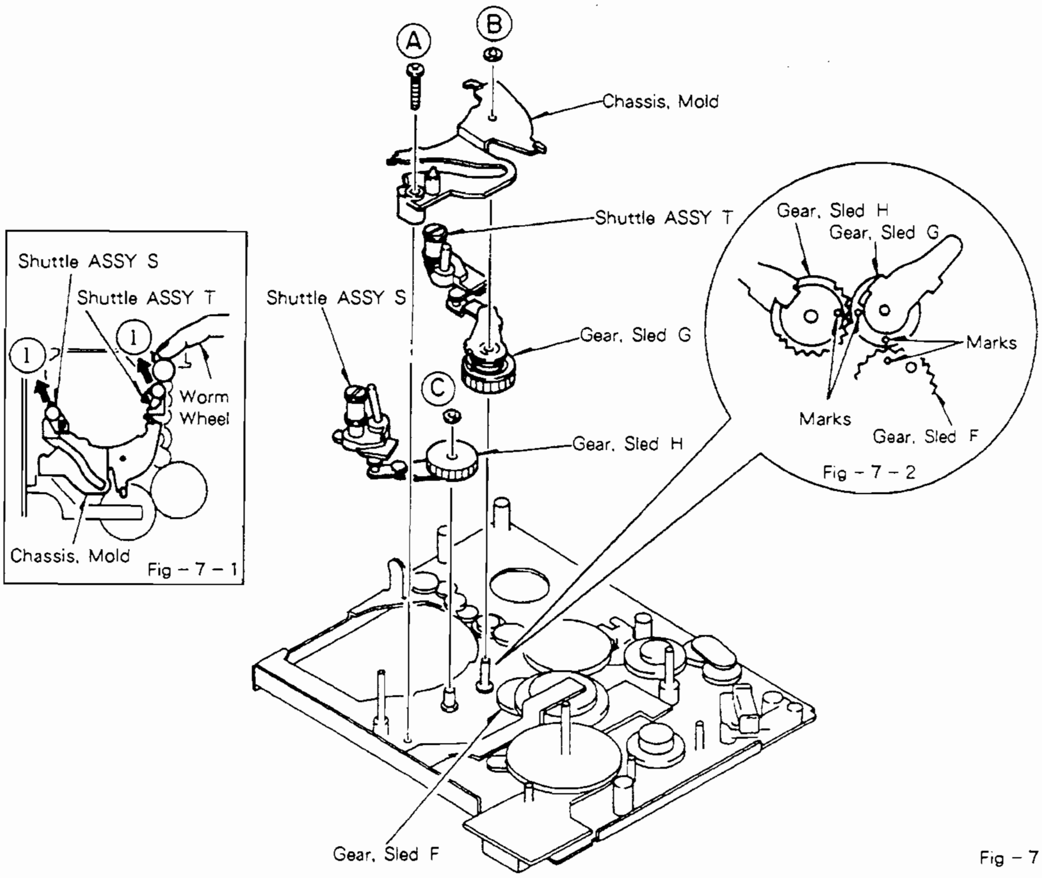

Ⓐ
Ⓑ
Chassis, Mold
Shuttle ASSY T
Shuttle ASSY S
Gear, Sled G
Ⓒ
Gear, Sled H
Gear, Sled F
Shuttle ASSY S
Shuttle ASSY T
①
①
Worm Wheel
Chassis, Mold
Gear, Sled H
Gear, Sled G
Marks
Marks
Gear, Sled F

Fig – 7 – 1

Fig – 7 – 2

Fig – 7

8. Position Alignment of Gears (See Figure – 8)

1) Align the positions of "Gear, Sled H", "Gear, Sled G", "Gear, Sled F", "Cam, A", "Cam, B" and "Mode Switch ASSY" as shown in the figure.

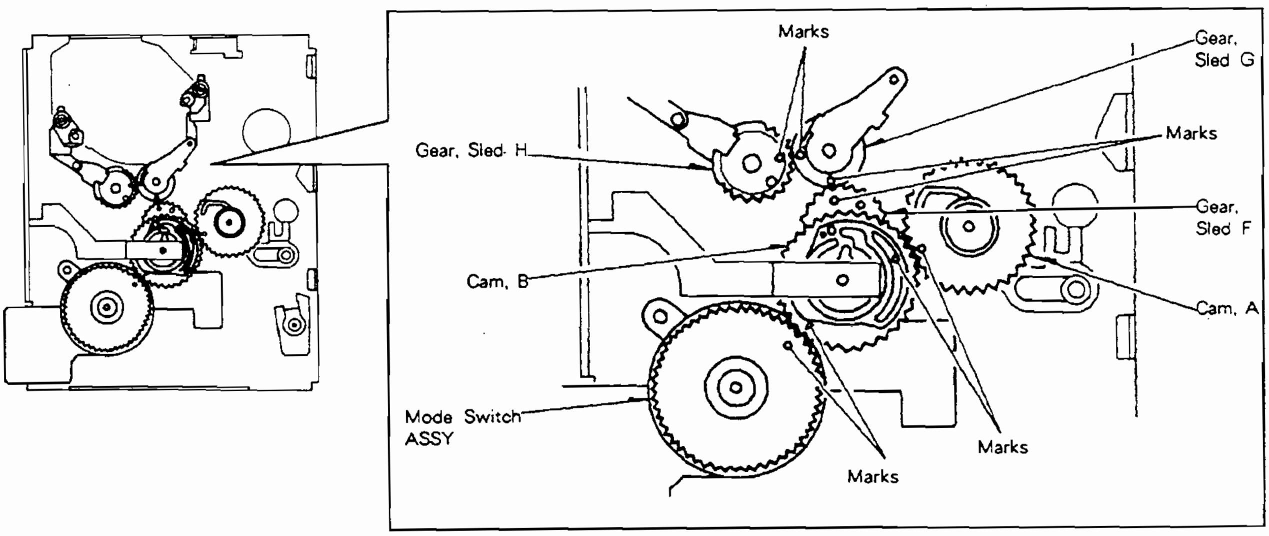

Marks
Gear, Sled G
Gear, Sled H
Marks
Gear, Sled F
Cam, B
Cam, A
Mode Switch ASSY
Marks
Marks

Fig – 8

ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
=== IC ===		
	89-HD1-603-080	IC, HA12062AMP
	89-HD1-602-080	IC, HA12133MP
	89-HD1-633-010	IC, HD49211BFS
	89-HD1-604-010	IC, HD49212
	87-001-800-010	IC, HM65256BFP-15T
	87-001-801-080	IC, LB1631M
	87-001-797-010	IC, LC7582A
	87-001-798-080	IC, M5236ML
	87-001-793-010	IC, MN86081
	87-001-792-080	IC, NJM2100M
	87-001-802-080	IC, NJM2902M
	87-027-842-080	IC, NJM2904M
	87-001-834-080	IC, NJM3414M
	87-002-213-010	IC, SAA7322
	87-001-799-080	IC, SN74LS624NS
	87-001-803-080	IC, TA7745F
	87-020-784-080	IC, TC4053BF
	87-001-796-080	IC, TC74HC163F
	87-001-668-080	IC, TC74HC4053AF
	87-001-795-080	IC, TC74HC74F
	87-001-604-080	IC, TC74HCU04F
	87-001-550-080	IC, TC7S04F
	80-HD3-618-010	IC, UPD75P108
=== TRANSISTOR ===		
	89-508-805-080	FET, 2SK880GR
	89-113-142-080	TRANSISTOR, 2SA1314B
	89-211-821-080	TRANSISTOR, 2SB1182Q
	89-327-125-080	TRANSISTOR, 2SC2712GR
	89-341-164-080	TRANSISTOR, 2SC4116Y
	89-342-132-080	TRANSISTOR, 2SC4213B
	87-026-331-080	TRANSISTOR, DTA114YU
	87-026-342-080	TRANSISTOR, DTC144EU
	87-026-355-080	TRANSISTOR, FMA2
	87-026-419-080	TRANSISTOR, RN2301
=== DIODE ===		
	87-001-166-080	DIODE, CHIP 1SS301
	87-001-813-080	DIODE, CHIP U1GWJ49
	87-020-583-080	DIODE, ZENER CHIP 02CZ5.1Y
=== MAIN CIRCUIT BOARD SECTION ===		
C1	★87-012-274-080	CAP, CHIP SS 1000P-50
C2	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C3	★87-010-787-080	CAP, CHIP SS 0.022-25
C4	★87-012-176-080	CAP, CHIP SS 15P-50 CH
C5	★87-010-196-080	CAP, CHIP S 0.1-25
C6	★87-010-515-080	CAP, CHIP TANTALUM 22-6.3
C7	★87-012-172-080	CAP, CHIP SS 10P-50 CH
C8	★87-012-274-080	CAP, CHIP SS 1000P-50
C9	★87-012-180-080	CAP, CHIP SS 22P-50 CH
C10	★87-010-196-080	CAP, CHIP S 0.1-25
C11	★87-012-174-080	CAP, CHIP SS 12P-50 CH
C12	★87-012-174-080	CAP, CHIP SS 12P-50 CH
C13	★87-012-174-080	CAP, CHIP SS 12P-50 CH
C14	★87-012-174-080	CAP, CHIP SS 12P-50 CH
C15	★87-010-196-080	CAP, CHIP S 0.1-25
C16	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C17	★87-010-196-080	CAP, CHIP S 0.1-25
C18	★87-010-746-080	CAP, CHIP TANTALUM 10-4
C19	★87-010-746-080	CAP, CHIP TANTALUM 10-4
C20	★87-012-188-080	CAP, CHIP SS 47P-50 CH
C21	★87-012-188-080	CAP, CHIP SS 47P-50 CH
C23	★87-010-515-080	CAP, CHIP TANTALUM 22-6.3
C24	★87-012-172-080	CAP, CHIP SS 10P-50 CH
C25	★87-012-281-080	CAP, CHIP SS 3900P-50
C26	★87-012-285-080	CAP, CHIP SS 8200P-50
C27	★87-012-281-080	CAP, CHIP SS 3900P-50
C28	★87-012-188-080	CAP, CHIP SS 47P-50 CH
C29	★87-012-286-080	CAP, CHIP SS 0.01-25
C30	★87-012-196-080	CAP, CHIP SS 120P-50 CH
C31	★87-012-278-080	CAP, CHIP SS 2200P-50
C32	★87-012-274-080	CAP, CHIP SS 1000P-50
C33	★87-010-196-080	CAP, CHIP S 0.1-25
C34	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C35	★87-010-789-080	CAP, CHIP MYLAR 0.022
C36	★87-012-360-080	CAP, CHIP S 1-10
C37	★87-010-196-080	CAP, CHIP S 0.1-25
C38	★87-012-188-080	CAP, CHIP SS 47P-50 CH
C39	★87-012-286-080	CAP, CHIP SS 0.01-25
C40	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C41	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C42	★87-012-274-080	CAP, CHIP SS 1000P-50
C43	★87-010-772-080	CAP, CHIP MYLAR 2200P-25
C44	★87-010-774-080	CAP, CHIP MYLAR 0.047-25
C45	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C46	★87-010-772-080	CAP, CHIP MYLAR 2200P-25
C47	★87-010-775-080	CAP, CHIP MYLAR 0.068-25
C48	★87-012-360-080	CAP, CHIP S 1-10
C49	★87-010-781-080	CAP, CHIP ELECT 3.3-6.3 BP
C50	★87-012-286-080	CAP, CHIP SS 0.01-25
C51	★87-012-282-080	CAP, CHIP SS 4700P-50
C52	★87-010-194-080	CAP, CHIP S 0.047-25
C53	★87-010-196-080	CAP, CHIP S 0.1-25
C54	★87-012-286-080	CAP, CHIP SS 0.01-25
C55	★87-010-196-080	CAP, CHIP S 0.1-25
C56	★87-010-510-080	CAP, CHIP TANTALUM 4.7-10
C57	★87-012-360-080	CAP, CHIP S 1-10
C58	★87-012-286-080	CAP, CHIP SS 0.01-25
C59	★87-010-776-080	CAP, CHIP MYLAR 0.15-25
C60	★87-012-360-080	CAP, CHIP S 1-10
C61	★87-010-730-080	CAP, CHIP ELECT 10-6.3
C62	★87-010-730-080	CAP, CHIP ELECT 10-6.3
C63	★87-010-730-080	CAP, CHIP ELECT 10-6.3
C64	★87-012-195-080	CAP, CHIP SS 100P-50 CH
C65	★87-012-360-080	CAP, CHIP S 1-10
C66	★87-012-274-080	CAP, CHIP SS 1000P-50
C67	★87-012-360-080	CAP, CHIP S 1-10
C68	★87-012-360-080	CAP, CHIP S 1-10
C69	★87-012-286-080	CAP, CHIP SS 0.01-25
C71	★87-012-182-080	CAP, CHIP SS 27P-50 CH
C72	★87-012-182-080	CAP, CHIP SS 27P-50 CH
C73	★87-010-196-080	CAP, CHIP S 0.1-25
C75	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C76	★87-012-286-080	CAP, CHIP SS 0.01-25
C77	★87-012-286-080	CAP, CHIP SS 0.01-25
C78	★87-010-769-080	CAP, CHIP TANTALUM 6.8-10
C79	★87-010-196-080	CAP, CHIP S 0.1-25
C80	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C81	★87-010-196-080	CAP, CHIP S 0.1-25
C82	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C83	★87-010-196-080	CAP, CHIP S 0.1-25
C84	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C85	★87-010-196-080	CAP, CHIP S 0.1-25
C86	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C87	★87-010-196-080	CAP, CHIP S 0.1-25
C88	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C89	★87-010-196-080	CAP, CHIP S 0.1-25
C90	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C91	★87-010-196-080	CAP, CHIP S 0.1-25
C92	★87-010-175-080	CAP, CHIP S 560P-50 SL
C93	★87-010-318-080	CAP, CHIP S 47P-50 CH
C94	★87-012-276-080	CAP, CHIP SS 1500P-50
C95	★87-012-274-080	CAP, CHIP SS 1000P-50
C96	★87-012-195-080	CAP, CHIP SS 100P-50 CH
C97	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C98	★87-010-175-080	CAP, CHIP S 560P-50 SL
C99	★87-010-318-080	CAP, CHIP S 47P-50 CH
C100	★87-012-276-080	CAP, CHIP SS 1500P-50
C101	★87-012-274-080	CAP, CHIP SS 1000P-50
C102	★87-012-195-080	CAP, CHIP SS 100P-50 CH
C103	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C104	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C105	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C106	★87-012-286-080	CAP, CHIP SS 0.01-25
C107	★87-010-770-080	CAP, CHIP TANTALUM 100-4
C108	★87-010-196-080	CAP, CHIP S 0.1-25
C109	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C110	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C111	★87-012-286-080	CAP, CHIP SS 0.01-25
C112	★87-010-770-080	CAP, CHIP TANTALUM 100-4
C113	★87-010-196-080	CAP, CHIP S 0.1-25
C114	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C115	★87-010-196-080	CAP, CHIP S 0.1-25
C116	★87-010-522-080	CAP, CHIP TANTALUM 2.2-10
C117	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C118	★87-010-800-080	CAP, CHIP TANTALUM 1-10
C119	★87-012-142-080	CAP, CHIP S 0.33-16
C120	★87-012-274-080	CAP, CHIP SS 1000P-50
C121	★87-010-716-080	CAP, CHIP ELECT 100-6.3
C122	★87-012-142-080	CAP, CHIP S 0.33-16
C123	★87-012-274-080	CAP, CHIP SS 1000P-50
C126	★87-012-286-080	CAP, CHIP SS 0.01-25
C127	★87-010-771-080	CAP, CHIP TANTALUM 47-6.3
C128	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C130	★87-012-141-080	CAP, CHIP S 0.22-16
C132	★87-010-800-080	CAP, CHIP TANTALUM 1-10
C133	★87-012-282-080	CAP, CHIP SS 4700P-50
C134	★87-012-282-080	CAP, CHIP SS 4700P-50
J1	87-009-284-010	JACK, 3.5 ST BLK (PHONES)
L1	★87-005-298-080	COIL, CHIP 10UH
L2	★87-005-298-080	COIL, CHIP 10UH
L3	★87-005-286-080	COIL, CHIP 1UH
L4	★89-HD1-612-080	COIL, CHIP S5CDLN-1410AN
L6	★89-HD1-608-080	FILTER, A365LNG-1391
L7	★89-HD1-609-080	FILTER, H366BNJ-1232YPD
L8	★87-005-294-080	COIL, CHIP 4.7UH
L9	★87-003-234-080	COIL, CHIP S 0.22UH
L10	★87-003-234-080	COIL, CHIP S 0.22UH
L11	★87-003-241-080	COIL, CHIP S 4.7UH
L12	★87-003-234-080	COIL, CHIP S 0.22UH
L13	★87-003-234-080	COIL, CHIP S 0.22UH
L14	★87-003-234-080	COIL, CHIP S 0.22UH
L15	★87-003-234-080	COIL, CHIP S 0.22UH
L22	★87-010-196-080	CAP, CHIP S 0.1-25
SFR1	★87-024-293-080	SFR 100K
SFR2	★87-024-298-080	SFR 10K
SFR3	★87-024-286-080	SFR 3K
SW4	87-036-191-080	PUSH SW (CASSETTE DET.)
VR1	89-HD1-601-010	VR, 20KA (VOLUME)
X1	★87-030-190-010	XTAL RESONATOR 37.632MHZ
X2	★87-030-147-010	XTAL RESONATOR 24.576MHZ
X3	★87-030-146-010	XTAL RESONATOR 22.5792MHZ
X4	★87-030-191-080	VIB, CER 4.19MGCM
=== PREAMP CIRCUIT BOARD SECTION ===		
C1	★87-010-771-080	CAP, CHIP TANTALUM 47-6.3
C2	★87-010-771-080	CAP, CHIP TANTALUM 47-6.3
C3	★87-010-196-080	CAP, CHIP S 0.1-25
C4	★87-010-196-080	CAP, CHIP S 0.1-25
C5	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C6	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C7	★87-010-196-080	CAP, CHIP S 0.1-25
C8	★87-010-196-080	CAP, CHIP S 0.1-25
C9	★87-012-286-080	CAP, CHIP SS 0.01-25
C10	★87-010-515-080	CAP, CHIP TANTALUM 22-6.3
C11	★87-012-193-080	CAP, CHIP SS 82P-50 CH
C12	★87-012-193-080	CAP, CHIP SS 82P-50 CH
C13	★87-012-282-080	CAP, CHIP SS 4700P-50
C14	★87-012-282-080	CAP, CHIP SS 4700P-50
C15	★87-012-280-080	CAP, CHIP SS 3300P-50
C16	★87-012-280-080	CAP, CHIP SS 3300P-50
C17	★87-012-280-080	CAP, CHIP SS 3300P-50
C18	★87-012-280-080	CAP, CHIP SS 3300P-50
C19	★87-012-286-080	CAP, CHIP SS 0.01-25
C20	★87-012-286-080	CAP, CHIP SS 0.01-25
C21	★87-010-198-080	CAP, CHIP S 0.022-25
C22	★87-010-198-080	CAP, CHIP S 0.022-25
C23	★87-012-286-080	CAP, CHIP SS 0.01-25
C24	★87-012-286-080	CAP, CHIP SS 0.01-25
C25	★87-012-286-080	CAP, CHIP SS 0.01-25
C26	★87-012-195-080	CAP, CHIP SS 100P-50 CH
C27	★87-012-286-080	CAP, CHIP SS 0.01-25
C28	★87-012-199-080	CAP, CHIP SS 220P-50 CH
C29	★87-012-286-080	CAP, CHIP SS 0.01-25
C30	★87-012-286-080	CAP, CHIP SS 0.01-25
C31	★87-012-286-080	CAP, CHIP SS 0.01-25
C32	★87-012-275-080	CAP, CHIP SS 1200P-50
C33	★87-012-182-080	CAP, CHIP SS 27P-50 CH
C34	★87-012-286-080	CAP, CHIP SS 0.01-25
C35	★87-012-286-080	CAP, CHIP SS 0.01-25
C36	★87-012-286-080	CAP, CHIP SS 0.01-25
C37	★87-010-196-080	CAP, CHIP S 0.1-25
C38	★87-010-196-080	CAP, CHIP S 0.1-25
C39	★87-010-771-080	CAP, CHIP TANTALUM 47-6.3
C40	★87-010-771-080	CAP, CHIP TANTALUM 47-6.3
C41	★87-012-286-080	CAP, CHIP SS 0.01-25
C42	★87-012-286-080	CAP, CHIP SS 0.01-25
C43	★87-010-505-080	CAP, CHIP TANTALUM 1-16
C44	★87-010-596-080	CAP, CHIP S 0.047-16
C45	★87-012-286-080	CAP, CHIP SS 0.01-25
C46	★87-012-286-080	CAP, CHIP SS 0.01-25
C47	★87-012-180-080	CAP, CHIP SS 22P-50 CH
C48	★87-012-286-080	CAP, CHIP SS 0.01-25
C49	★87-012-286-080	CAP, CHIP SS 0.01-25
C50	★87-012-286-080	CAP, CHIP SS 0.01-25
C51	★87-012-286-080	CAP, CHIP SS 0.01-25
C52	★87-012-286-080	CAP, CHIP SS 0.01-25
C53	★87-012-286-080	CAP, CHIP SS 0.01-25
C54	★87-012-286-080	CAP, CHIP SS 0.01-25
L1	★87-005-310-080	COIL, CHIP 100UH
L2	★87-005-310-080	COIL, CHIP 100UH
L3	★87-005-310-080	COIL, CHIP 100UH
L4	★89-HD1-607-080	COIL, 303AN-1531AQVCO

REF. NO.	PART NO.	DESCRIPTION
SFR1	★87-024-286-080	SFR 3K
SFR2	★87-024-286-080	SFR 3K
SFR5	★87-024-221-010	SFR 1K
SFR6	★87-001-587-010	SFR 10K

=== FRONT CIRCUIT BOARD SECTION ===

C1	★87-012-272-080	CAP, CHIP SS 680P-50
C2	★87-010-196-080	CAP, CHIP S 0.1-25
LCD1	89-HD1-611-010	LCD, LTP7L9011A(DISPLAY)
SW1	87-036-192-080	TACT SW(DISPLAY)
SW2	87-036-192-080	TACT SW(AARS/RESET)
SW3	87-036-192-080	TACT SW(SHUT)

=== FRONT SWITCH CIRCUIT BOARD SECTION ===

SW4	87-036-192-080	TACT SW(REW/B SKIP)
SW5	87-036-192-080	TACT SW(PLAY/PAUSE)
SW6	87-036-192-080	TACT SW(F.FWD/F SKIP)
SW7	87-036-192-080	TACT SW(STOP/EJECT)
SW8	87-036-192-080	TACT SW(REC)

=== SWITCH CIRCUIT BOARD SECTION ===

SW9	87-030-152-080	TACT SW(ID ERASE)
SW10	87-030-152-080	TACT SW(ID MARK)
SW11	87-030-152-080	TACT SW(RENUMBER)

=== DIGITAL CIRCUIT BOARD SECTION ===

C401	★87-012-274-080	CAP, CHIP SS 1000P-50
C402	★87-012-274-080	CAP, CHIP SS 1000P-50
C403	★87-012-142-080	CAP, CHIP S 0.33-16
C404	★87-012-270-080	CAP, CHIP S 470P-50
J401	★87-009-680-010	JACK, 2P (DIGITAL IN/OUT)
L401	★87-005-407-080	COIL, CHIP BLM41A04
SW401	87-036-218-010	SLIDE SW(DRY CELL)
SW402	87-036-218-010	SLIDE SW(MIC ATT)
SW403	87-036-218-010	SLIDE SW(MIC/LINE1/LINE2)
SW404	87-036-217-010	SLIDE SW(KEY HOLD)
SW405	87-036-217-010	SLIDE SW(INPUT)

=== A/D CONVERTER CIRCUIT BOARD SECTION ===

C301	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C302	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C303	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C304	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C305	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C306	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C307	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C308	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C309	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C310	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C311	★87-010-606-080	CAP, CHIP ELECT 22-6.3
C312	★87-010-606-080	CAP, CHIP ELECT 22-6.3
C313	★87-012-198-080	CAP, CHIP SS 180P-50 CH
C314	★87-012-198-080	CAP, CHIP SS 180P-50 CH
C315	★87-012-142-080	CAP, CHIP S 0.33-16
C316	★87-012-142-080	CAP, CHIP S 0.33-16
C319	★87-012-142-080	CAP, CHIP S 0.33-16
C320	★87-012-142-080	CAP, CHIP S 0.33-16
C321	★87-012-142-080	CAP, CHIP S 0.33-16
C322	★87-012-142-080	CAP, CHIP S 0.33-16
C323	★87-010-606-080	CAP, CHIP ELECT 22-6.3
C324	★87-010-606-080	CAP, CHIP ELECT 22-6.3
C325	★87-010-606-080	CAP, CHIP ELECT 22-6.3
C326	★87-012-142-080	CAP, CHIP S 0.33-16
C327	★87-010-606-080	CAP, CHIP ELECT 22-6.3

REF. NO.	PART NO.	DESCRIPTION
C328	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C329	★87-010-424-080	CAP, CHIP TANTALUM 4.7-4
C330	★87-018-209-080	CAP, CHIP 0.1-50F
J301	★87-009-678-010	JACK, 4P (LINE2 IN, LINE OUT)
J303	87-009-244-010	JACK, MOJ-D15(DC 7.4V)
RLY301	87-045-327-010	RELAY, G5A-237PL 5V
RLY302	87-045-327-010	RELAY, G5A-237PL 5V
VR301	★80-HD3-623-010	VR, 20KA(REC LEVEL)

=== MIC AMP CIRCUIT BOARD SECTION ===

C101	★87-012-360-080	CAP, CHIP S 1-10
C102	★87-012-360-080	CAP, CHIP S 1-10
C105	★87-012-360-080	CAP, CHIP S 1-10
C106	★87-012-360-080	CAP, CHIP S 1-10
C107	★87-012-180-080	CAP, CHIP SS 22P-50 CH
C108	★87-012-180-080	CAP, CHIP SS 22P-50 CH
C109	★87-010-609-080	CAP, CHIP ELECT 220-4
C110	★87-010-609-080	CAP, CHIP ELECT 220-4
C111	★87-010-609-080	CAP, CHIP ELECT 220-4
C112	★87-010-609-080	CAP, CHIP ELECT 220-4
C113	★87-010-609-080	CAP, CHIP ELECT 220-4
C114	★87-010-609-080	CAP, CHIP ELECT 220-4
C115	★87-012-360-080	CAP, CHIP S 1-10
C116	★87-012-360-080	CAP, CHIP S 1-10
C119	★87-012-360-080	CAP, CHIP S 1-10
C120	★87-012-360-080	CAP, CHIP S 1-10
C121	★87-012-180-080	CAP, CHIP SS 22P-50 CH
C122	★87-012-180-080	CAP, CHIP SS 22P-50 CH
C123	★87-010-609-080	CAP, CHIP ELECT 220-4
C124	★87-010-609-080	CAP, CHIP ELECT 220-4
C125	★87-010-609-080	CAP, CHIP ELECT 220-4
C126	★87-010-609-080	CAP, CHIP ELECT 220-4
C127	★87-010-609-080	CAP, CHIP ELECT 220-4
C128	★87-010-609-080	CAP, CHIP ELECT 220-4
C129	★87-010-665-080	CAP, CHIP ELECT 47-6.3
C131	★87-012-336-080	CAP, CHIP SS 330P
C132	★87-012-336-080	CAP, CHIP SS 330P
C133	★87-012-336-080	CAP, CHIP SS 330P
C134	★87-012-336-080	CAP, CHIP SS 330P

=== TERMINAL 1 CIRCUIT BOARD SECTION ===

=== TERMINAL 2 CIRCUIT BOARD SECTION ===

=== TERMINAL 3 CIRCUIT BOARD SECTION ===

=== MECHA CIRCUIT BOARD SECTION(FLEXIBLE P.C.B) ===

CP1	89-HD1-613-110	PHOTO SENSOR, GP2L20L(TOP SENSOR)
CP2	89-HD1-613-110	PHOTO SENSOR, GP2L20L(END SENSOR)
PCB-L	★89-HD1-629-010	MECHA FLEXIBLE CIRCUIT BOARD
S1	86-544-608-010	PUSH SW(RECOG SW L)
S2	86-571-605-010	PUSH SW(RECOG SW R)

=== CONNECT 1 CIRCUIT BOARD SECTION ===

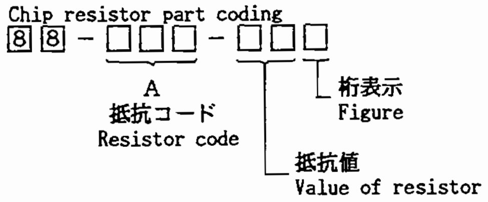
=== CONNECT 2 CIRCUIT BOARD SECTION ===

=== MISCELLANEOUS ===

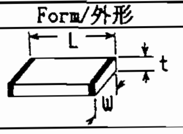
REF. NO.	PART NO.	DESCRIPTION
	86-544-610-010	POSITION SENSOR
	86-571-603-010	DRUM ASSY(DOU-02F)
	86-571-606-010	MODE SWITCH ASSY
J302	80-HD4-610-010	JACK, CANNON 5P(MIC/LINE 1)
M1	86-571-601-010	CAPSTAN MOTOR ASSY
M2	86-571-384-010	SLED MOTOR ASSY
SOL1	86-571-609-010	SOLENOID(BRAKE)

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip resistor part coding

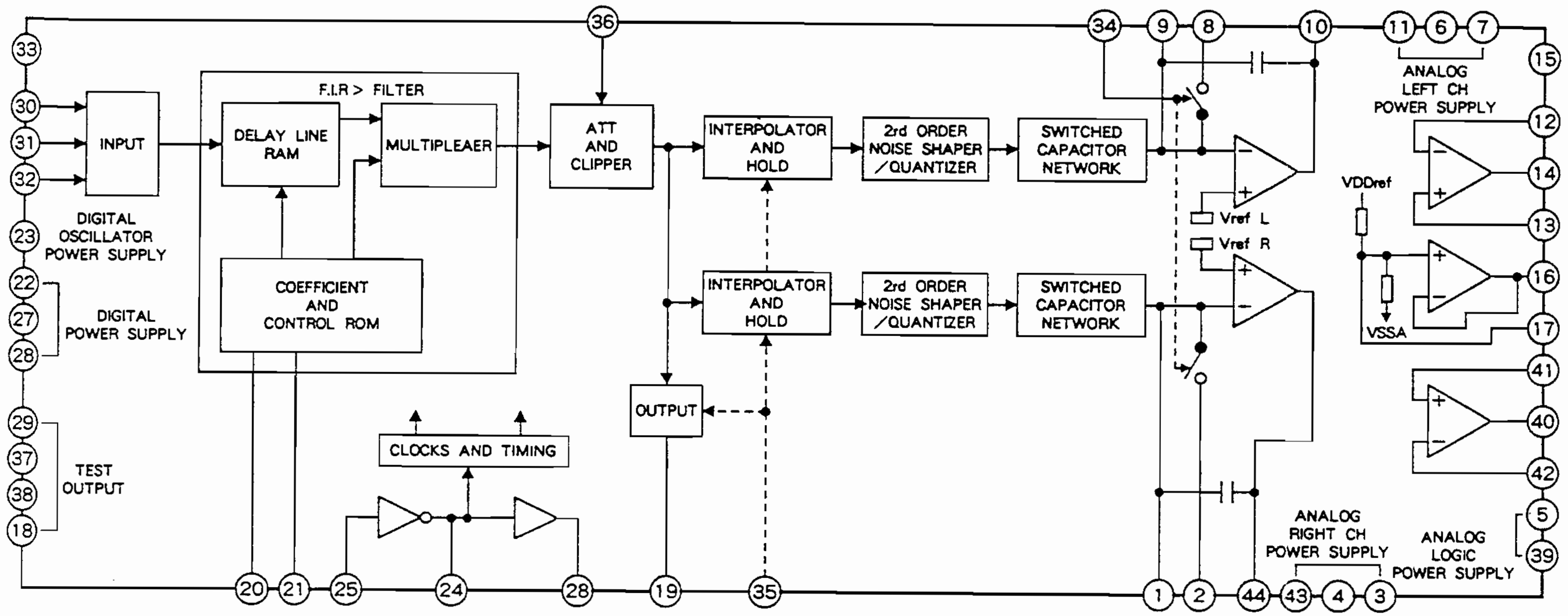


チップ抵抗
Chip resistor

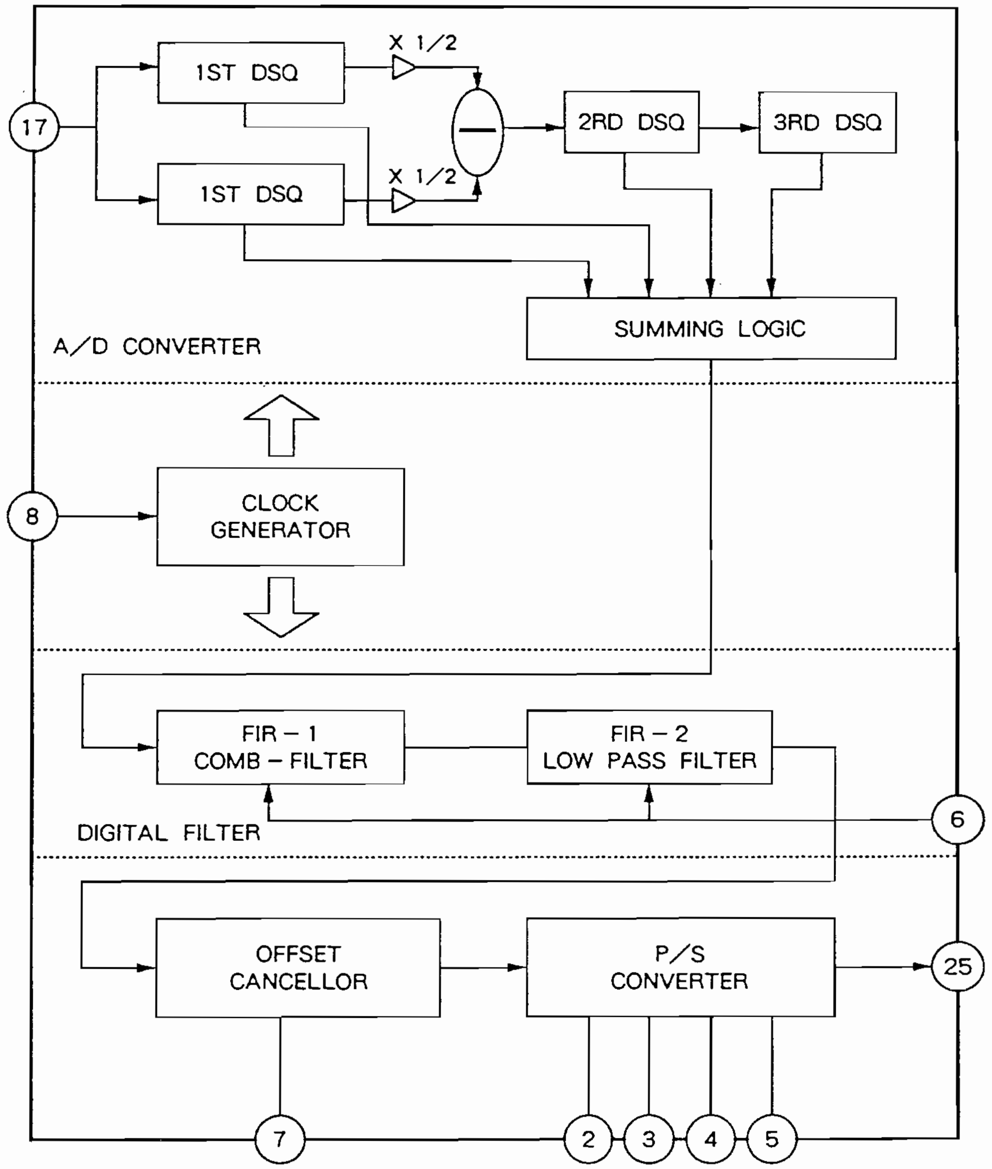
Wattage 容量	Type 種類	Tolerance 許容誤差	Symbol 記号	Dimensions／寸法(mm) Form/外形	L	W	t	Resistor Code : A 抵抗コード : A
1/32W	1608	±5%	CJ		1.6	0.8	0.35	108
1/10W	2125	±5%	CJ		2	1.25	1.45	118
1/8W	3216	±5%	CJ		3.2	1.6	0.5 ~0.7	128

IC BLOCK DIAGRAM – 1

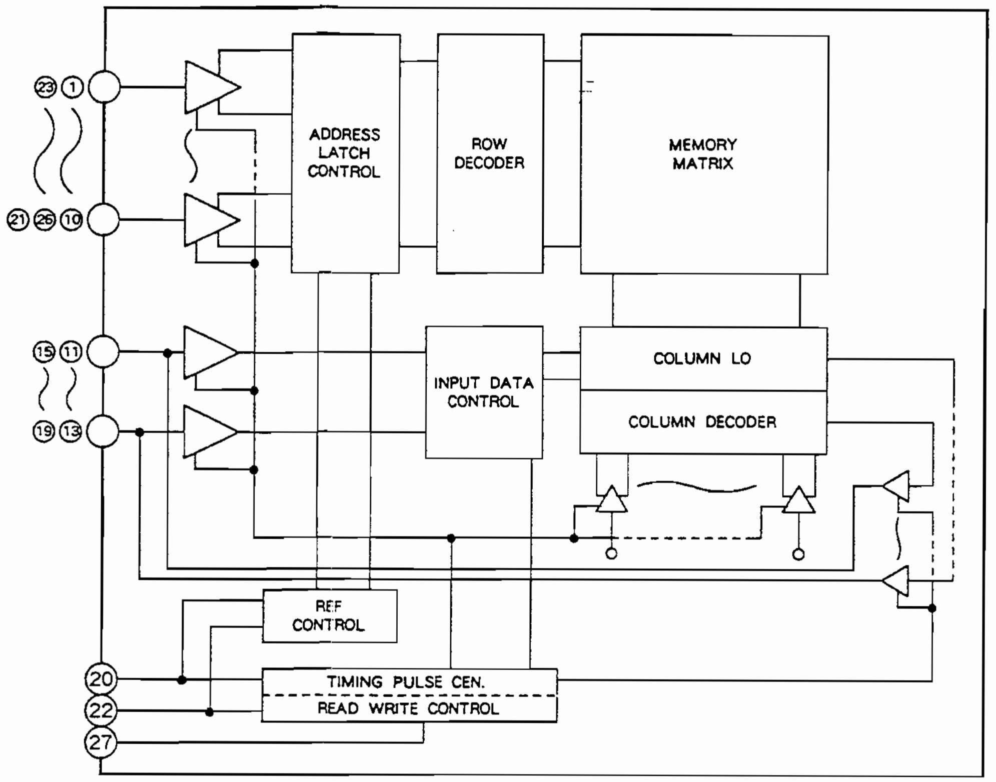
IC,SAA7322


INPUT
DELAY LINE RAM
MULTIPLEAER
F.I.R> FILTER
COEFFICIENT AND CONTROL ROM
ATT AND CLIPPER
INTERPOLATOR AND HOLD
2rd ORDER NOISE SHAPER /QUANTIZER
SWITCHED CAPACITOR NETWORK
OUTPUT
CLOCKS AND TIMING
DIGITAL OSCILLATOR POWER SUPPLY
DIGITAL POWER SUPPLY
TEST OUTPUT
ANALOG LEFT CH POWER SUPPLY
ANALOG RIGHT CH POWER SUPPLY
ANALOG LOGIC POWER SUPPLY
VDDref
VSSA
Vref L
Vref R
33
30
31
32
23
22
27
28
29
37
38
18
36
34
9
8
10
11
6
7
15
12
14
13
16
17
41
40
42
5
39
20
21
25
24
28
19
35
1
2
44
43
4
3

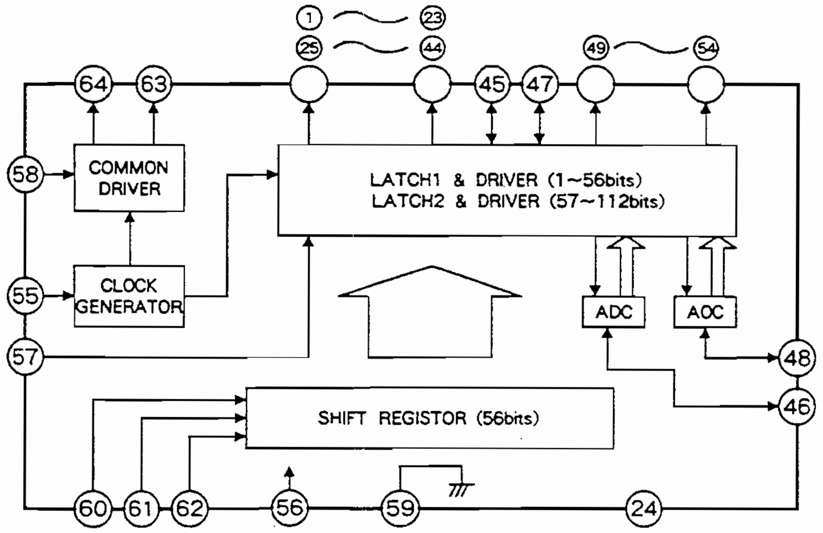
IC,MN86081


1ST DSQ
1ST DSQ
X 1/2
X 1/2
2RD DSQ
3RD DSQ
SUMMING LOGIC
A/D CONVERTER
CLOCK GENERATOR
FIR – 1 COMB – FILTER
FIR – 2 LOW PASS FILTER
DIGITAL FILTER
OFFSET CANCELLOR
P/S CONVERTER
17
8
6
25
7
2
3
4
5

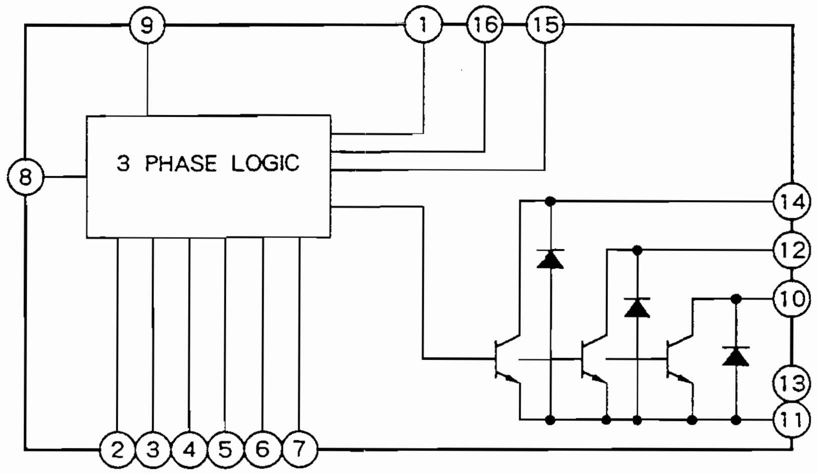
IC,HM65256BFP


ADDRESS LATCH CONTROL
ROW DECODER
MEMORY MATRIX
INPUT DATA CONTROL
COLUMN LO
COLUMN DECODER
REF CONTROL
TIMING PULSE CEN.
READ WRITE CONTROL
23
1
21
26
10
15
11
19
13
20
22
27

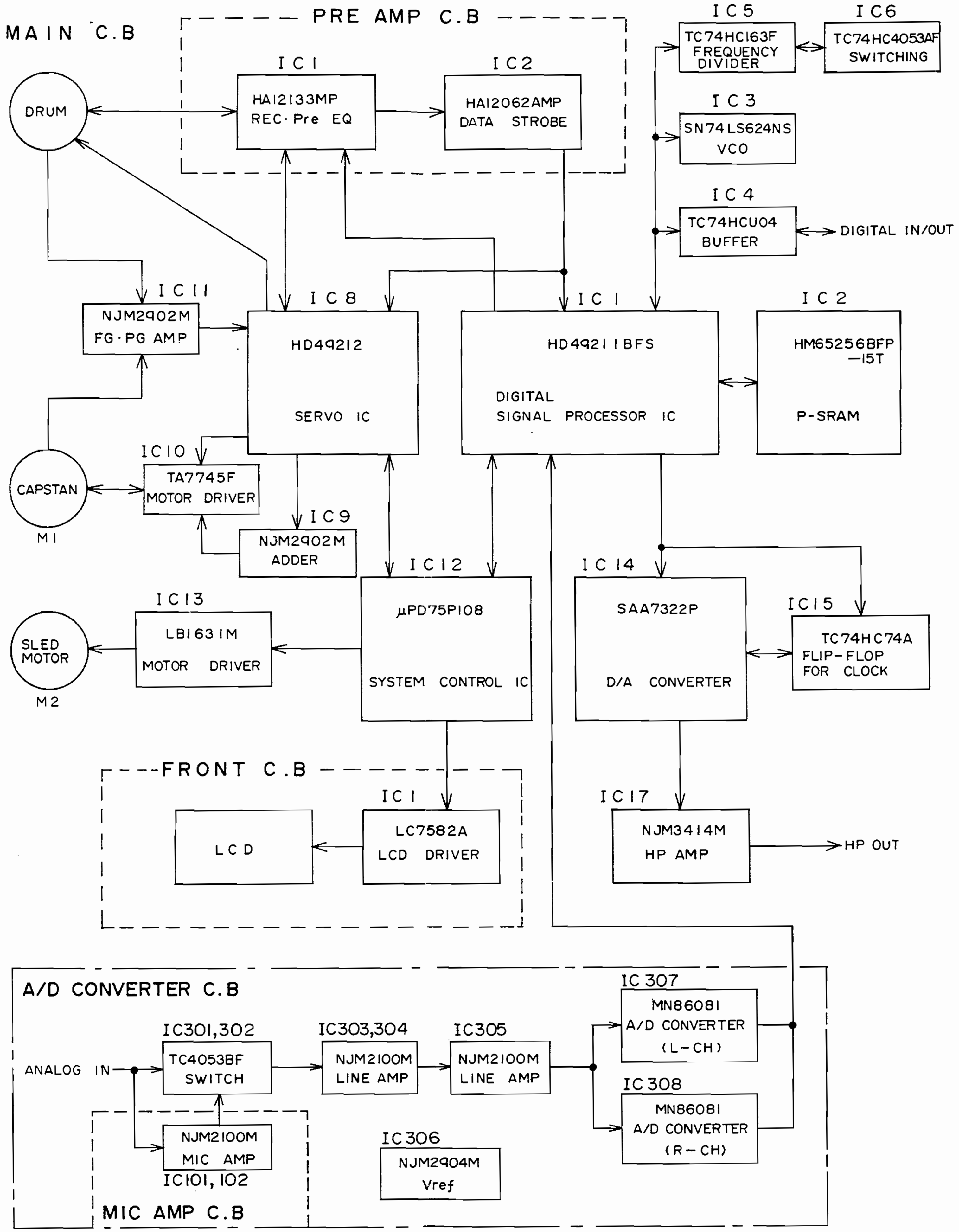
IC,LC7582A


1
23
25
44
49
54
64
63
45
47
COMMON DRIVER
CLOCK GENERATOR
LATCH1 & DRIVER (1~56bits)
LATCH2 & DRIVER (57~112bits)
ADC
AOC
SHIFT REGISTOR (56bits)
58
55
57
48
46
60
61
62
56
59
24

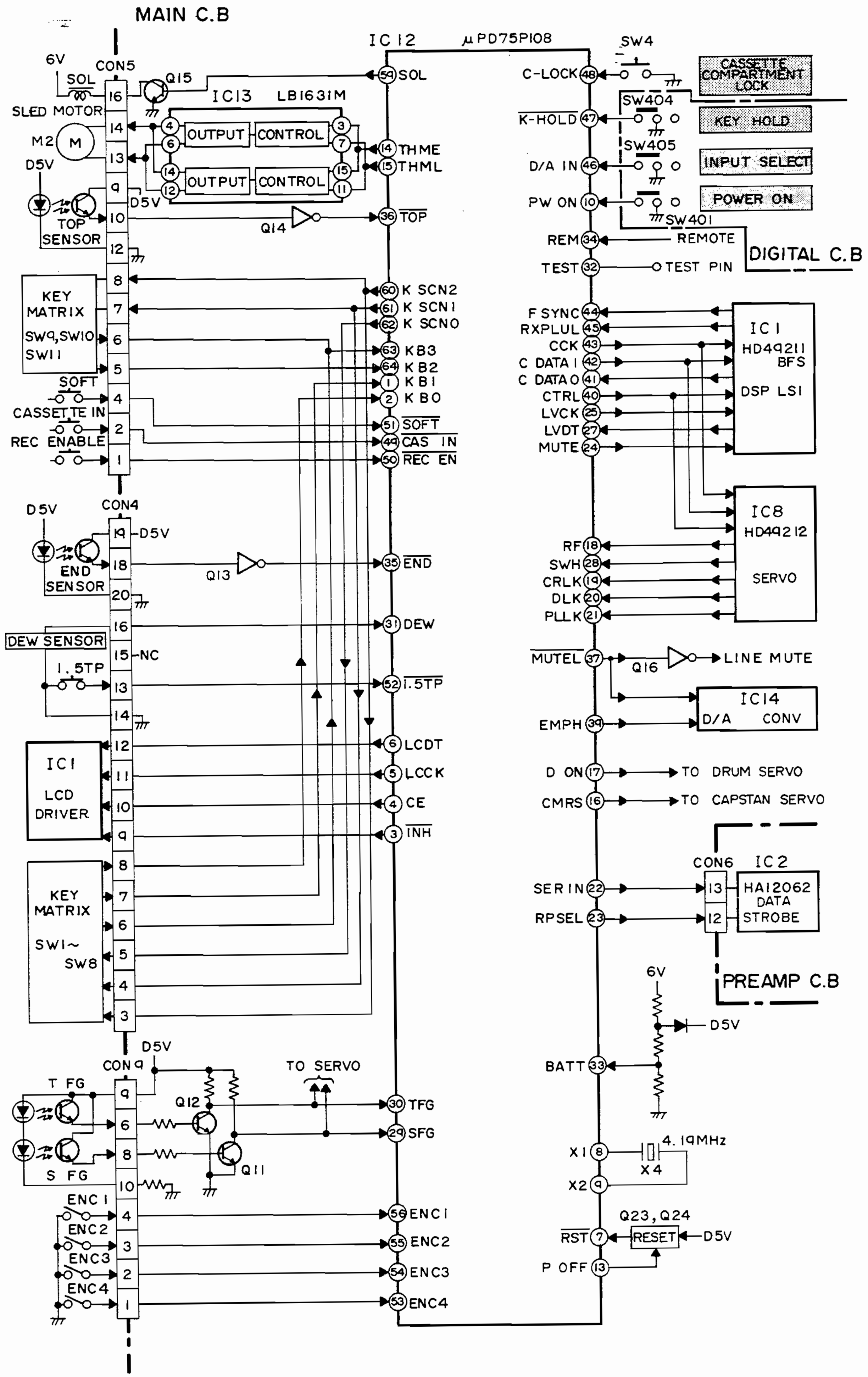
IC,TA7745F


3 PHASE LOGIC
9
1
16
15
8
14
12
10
13
11
2
3
4
5
6
7

BLOCK DIAGRAM – 1 (IC COMPOSITION)

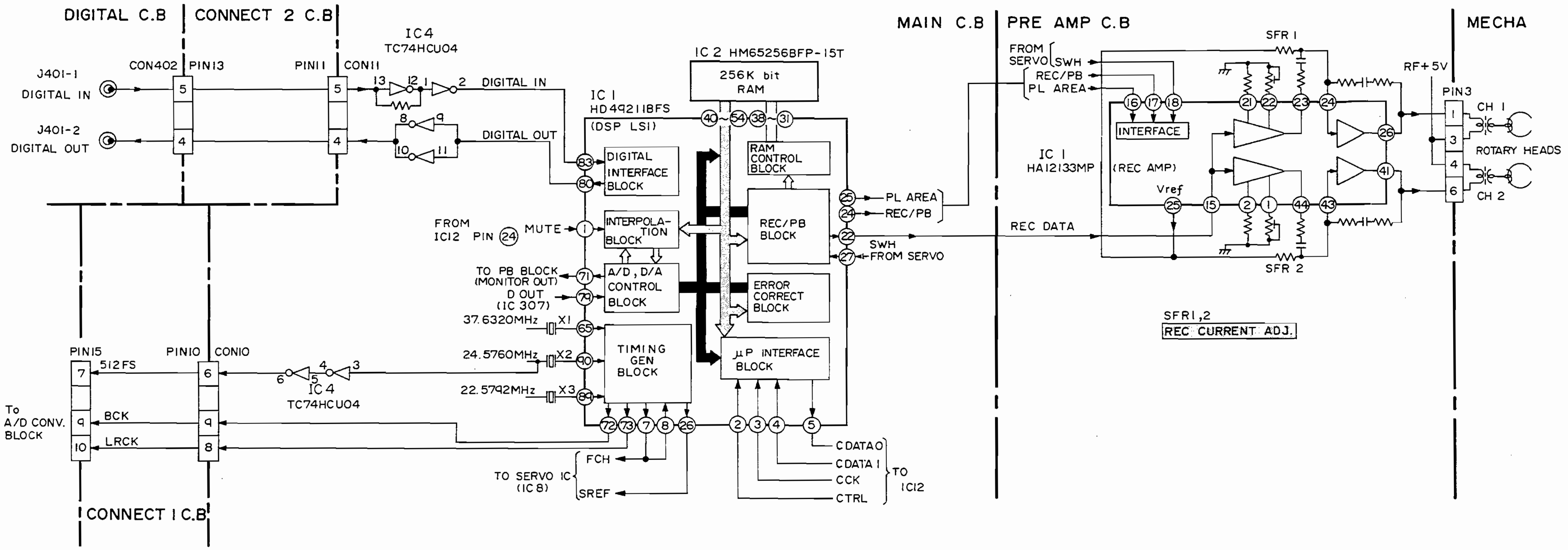

MAIN C.B
PRE AMP C.B
IC1
HA12133MP
REC·Pre EQ
IC2
HA12062AMP
DATA STROBE
IC5
TC74HC163F
FREQUENCY DIVIDER
IC6
TC74HC4053AF
SWITCHING
IC3
SN74LS624NS
VCO
IC4
TC74HCU04
BUFFER
DIGITAL IN/OUT
DRUM
IC11
NJM2902M
FG·PG AMP
IC8
HD49212
SERVO IC
IC1
HD49211BFS
DIGITAL SIGNAL PROCESSOR IC
IC2
HM65256BFP
–15T
P-SRAM
CAPSTAN
M1
IC10
TA7745F
MOTOR DRIVER
IC9
NJM2902M
ADDER
IC12
μPD75P108
SYSTEM CONTROL IC
IC14
SAA7322P
D/A CONVERTER
IC15
TC74HC74A
FLIP-FLOP FOR CLOCK
SLED MOTOR
M2
IC13
LB1631M
MOTOR DRIVER
FRONT C.B
IC1
LCD
LC7582A
LCD DRIVER
IC17
NJM3414M
HP AMP
HP OUT
A/D CONVERTER C.B
IC307
MN86081
A/D CONVERTER
(L–CH)
IC301,302
TC4053BF
SWITCH
IC303,304
NJM2100M
LINE AMP
IC305
NJM2100M
LINE AMP
ANALOG IN
IC308
MN86081
A/D CONVERTER
(R–CH)
NJM2100M
MIC AMP
IC101, 102
IC306
NJM2904M
Vref
MIC AMP C.B

BLOCK DIAGRAM – 2 (SYSTEM CONTROL)

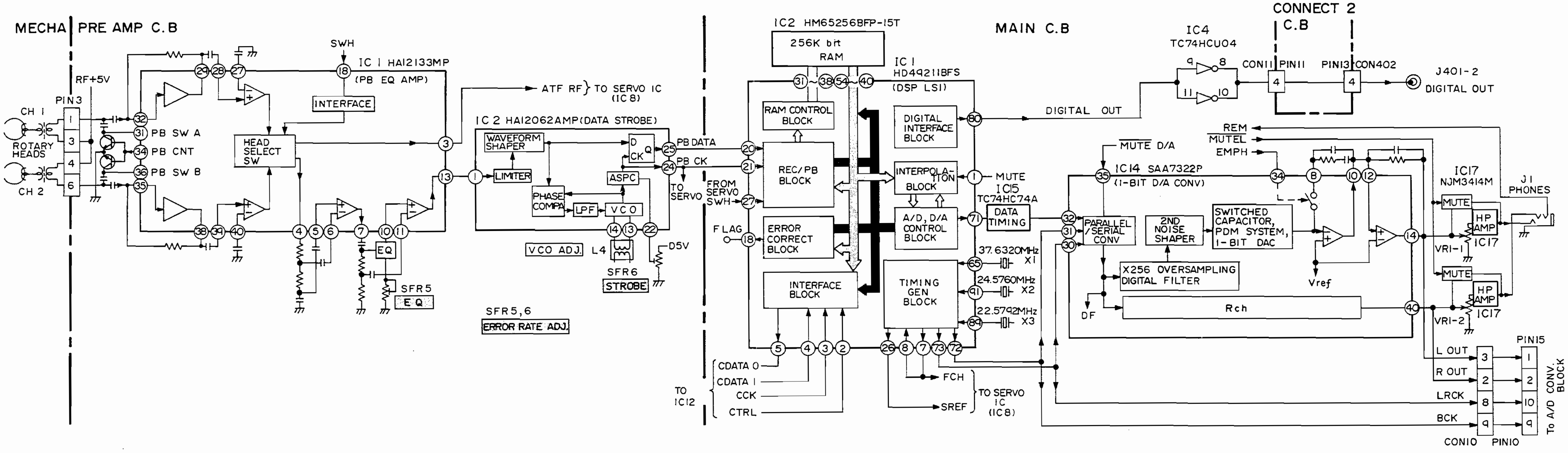

MAIN C.B
6V
SOL
CON5
Q15
SLED MOTOR
M2
M
D5V
IC13 LB1631M
OUTPUT
CONTROL
OUTPUT
CONTROL
D5V
TOP SENSOR
Q14
KEY MATRIX
SW9,SW10
SW11
SOFT
CASSETTE IN
REC ENABLE
IC12 μPD75P108
SOL
THME
THML
TOP
K SCN2
K SCN1
K SCN0
KB3
KB2
KB1
KB0
SOFT
CAS IN
REC EN
D5V
CON4
D5V
END SENSOR
Q13
END
DEW SENSOR
NC
DEW
1.5TP
1.5TP
IC1
LCD DRIVER
LCDT
LCCK
CE
INH
KEY MATRIX
SW1~SW8
D5V
CON9
T FG
S FG
Q12
Q11
TO SERVO
TFG
SFG
ENC1
ENC2
ENC3
ENC4
ENC1
ENC2
ENC3
ENC4
SW4
C-LOCK
CASSETTE COMPARTMENT LOCK
SW404
K-HOLD
KEY HOLD
SW405
D/A IN
INPUT SELECT
PW ON
POWER ON
SW401
REM
REMOTE
TEST
TEST PIN
DIGITAL C.B
F SYNC
RXPLUL
CCK
C DATA I
C DATA O
CTRL
LVCK
LVDT
MUTE
IC1
HD49211BFS
DSP LSI
IC8
HD49212
SERVO
RF
SWH
CRLK
DLK
PLLK
MUTEL
Q16
LINE MUTE
IC14
D/A CONV
EMPH
D ON
TO DRUM SERVO
CMRS
TO CAPSTAN SERVO
CON6
IC2
HA12062
DATA STROBE
SER IN
RPSEL
PREAMP C.B
6V
D5V
BATT
X1
X2
4.19MHz
X4
Q23, Q24
RST
RESET
D5V
P OFF

BLOCK DIAGRAM – 3 (REC/PB AUDIO)

< REC AUDIO BLOCK >

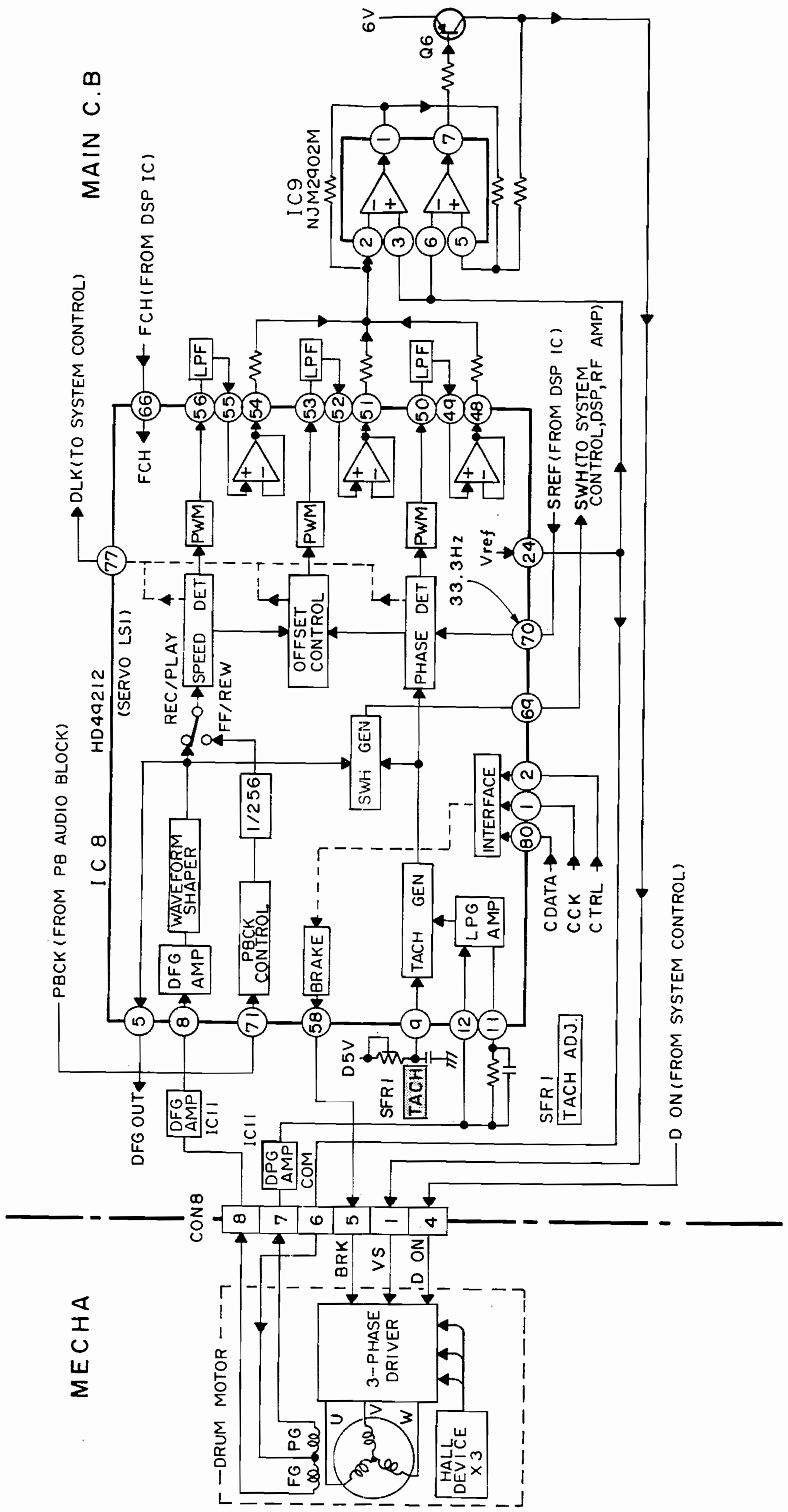


DIGITAL C.B
CONNECT 2 C.B
J401-1
DIGITAL IN
J401-2
DIGITAL OUT
CON402
PIN13
PIN11
CON11
IC4
TC74HCU04
DIGITAL IN
DIGITAL OUT
IC 2 HM65256BFP-15T
256K bit RAM
IC 1
HD49211BFS
(DSP LSI)
DIGITAL INTERFACE BLOCK
RAM CONTROL BLOCK
REC/PB BLOCK
INTERPOLA-TION BLOCK
A/D, D/A CONTROL BLOCK
ERROR CORRECT BLOCK
TIMING GEN BLOCK
µP INTERFACE BLOCK
FROM IC12 PIN 24
MUTE
TO PB BLOCK (MONITOR OUT)
D OUT (IC 307)
37.6320MHz
X1
24.5760MHz
X2
22.5792MHz
X3
PL AREA
REC/PB
SWH
FROM SERVO
PIN15
512FS
PIN10
CON10
To A/D CONV. BLOCK
BCK
LRCK
IC 4
TC74HCU04
FCH
SREF
TO SERVO IC (IC8)
CDATA 0
CDATA 1
CCK
CTRL
TO IC12
CONNECT 1 C.B
MAIN C.B
PRE AMP C.B
MECHA
FROM SERVO
SWH
REC/PB
PL AREA
SFR 1
RF+5V
PIN3
CH 1
ROTARY HEADS
CH 2
IC 1
HA12133MP
INTERFACE
(REC AMP)
Vref
REC DATA
SFR 2
SFR1,2
REC CURRENT ADJ.

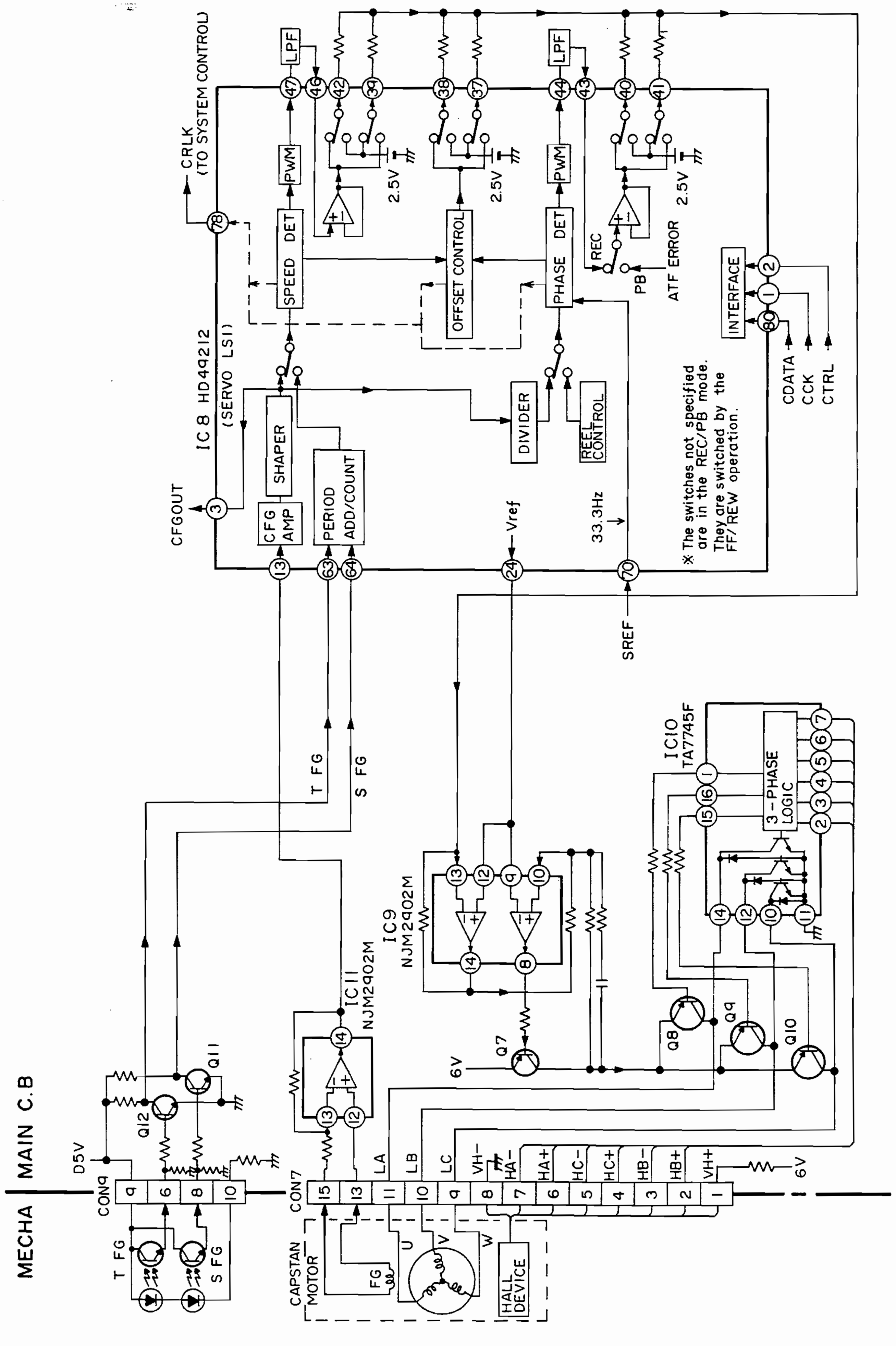


MECHA
PRE AMP C.B
RF+5V
PIN3
CH 1
ROTARY HEADS
CH 2
PB SW A
PB CNT
PB SW B
SWH
IC 1 HA12133MP
(PB EQ AMP)
INTERFACE
HEAD SELECT SW
EQ
SFR5
E Q
ATF RF
TO SERVO IC (IC8)
IC 2 HA12062AMP (DATA STROBE)
WAVEFORM SHAPER
LIMITER
PHASE COMPA
LPF
VCO
ASPC
D
Q
CK
PB DATA
PB CK
TO SERVO
VCO ADJ.
L4
SFR6
STROBE
D5V
SFR5,6
ERROR RATE ADJ.
IC2 HM65256BFP-15T
256K bit RAM
IC 1
HD49211BFS
(DSP LSI)
MAIN C.B
RAM CONTROL BLOCK
REC/PB BLOCK
ERROR CORRECT BLOCK
INTERFACE BLOCK
DIGITAL INTERFACE BLOCK
INTERPOLA-TION BLOCK
A/D, D/A CONTROL BLOCK
TIMING GEN BLOCK
FROM SERVO SWH
FLAG
MUTE
IC15
TC74HC74A
DATA TIMING
37.6320MHz
X1
24.5760MHz
X2
22.5792MHz
X3
CDATA 0
CDATA 1
CCK
CTRL
TO IC12
FCH
SREF
TO SERVO IC (IC8)
IC4
TC74HCU04
CONNECT 2 C.B
CON11
PIN11
PIN13
CON402
J401-2
DIGITAL OUT
DIGITAL OUT
REM
MUTEL
EMPH
MUTE D/A
IC14 SAA7322P
(1-BIT D/A CONV)
PARALLEL /SERIAL CONV
2ND NOISE SHAPER
SWITCHED CAPACITOR, PDM SYSTEM, 1-BIT DAC
X256 OVERSAMPLING DIGITAL FILTER
DF
Rch
Vref
IC17
NJM3414M
MUTE
HP AMP
IC17
VR1-1
VR1-2
J1
PHONES
L OUT
R OUT
LRCK
BCK
PIN15
CON10
PIN10
To A/D CONV. BLOCK

BLOCK DIAGRAM – 4 (DRUM SERVO)

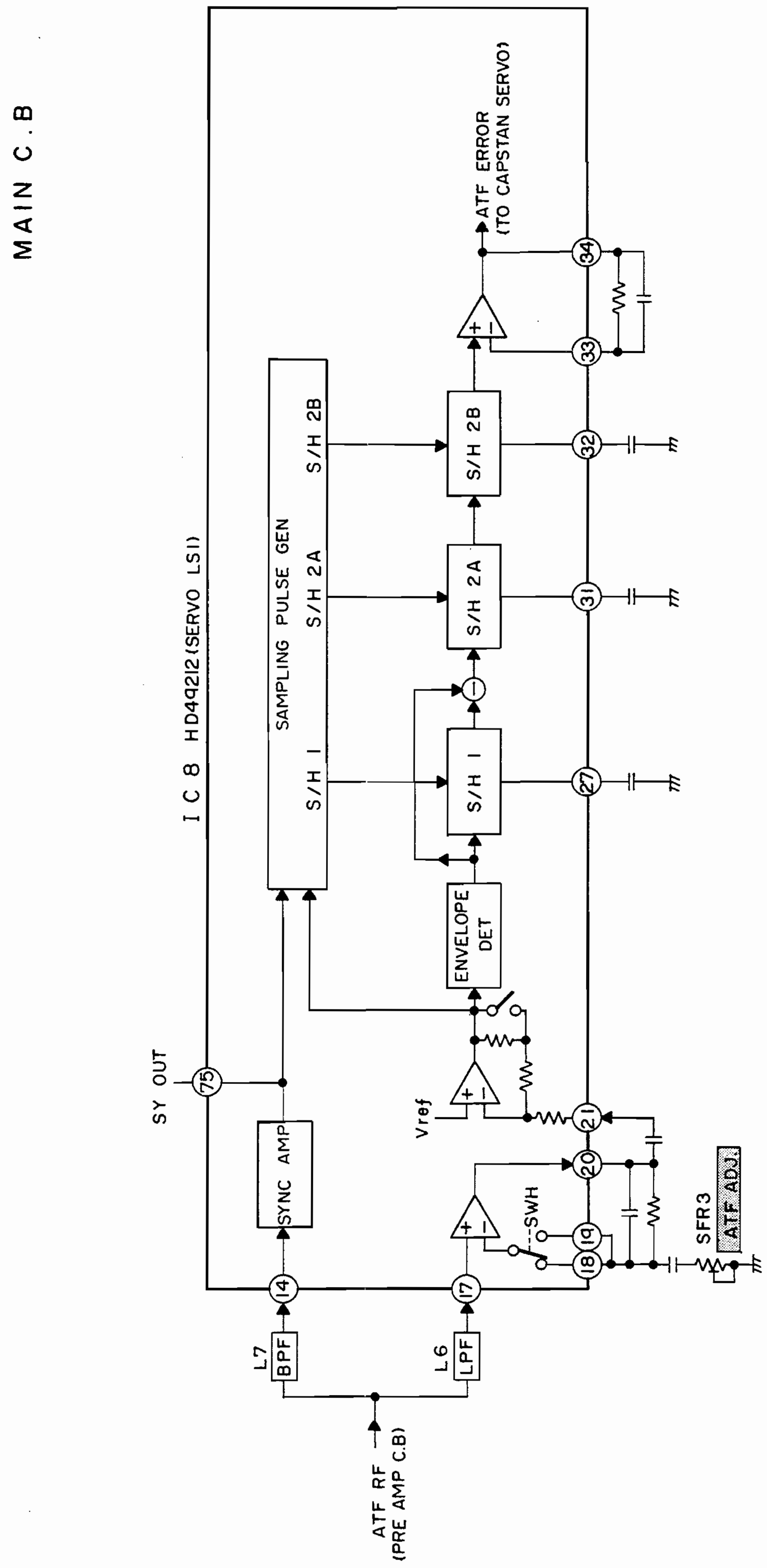

MAIN C.B
MECHA
6V
Q6
IC9 NJM2902M
DLK(TO SYSTEM CONTROL)
FCH(FROM DSP IC)
FCH
LPF
PWM
SPEED DET
PHASE DET
OFFSET CONTROL
33.3Hz
Vref
SREF(FROM DSP IC)
SWH(TO SYSTEM CONTROL,DSP,RF AMP)
IC 8 HD49212 (SERVO LSI)
PBCK(FROM PB AUDIO BLOCK)
REC/PLAY
FF/REW
WAVEFORM SHAPER
1/256
SWH GEN
INTERFACE
CDATA
CCK
CTRL
DFG AMP
PBCK CONTROL
BRAKE
TACH GEN
LPG AMP
D5V
SFR1
TACH
SFR1 TACH ADJ.
D ON(FROM SYSTEM CONTROL)
DFG OUT
DFG AMP IC11
DPG AMP IC11
COM
CON8
BRK
VS
D ON
3-PHASE DRIVER
HALL DEVICE X3
DRUM MOTOR
FG
PG
U
V
W

BLOCK DIAGRAM – 5 (CAPSTAN SERVO)

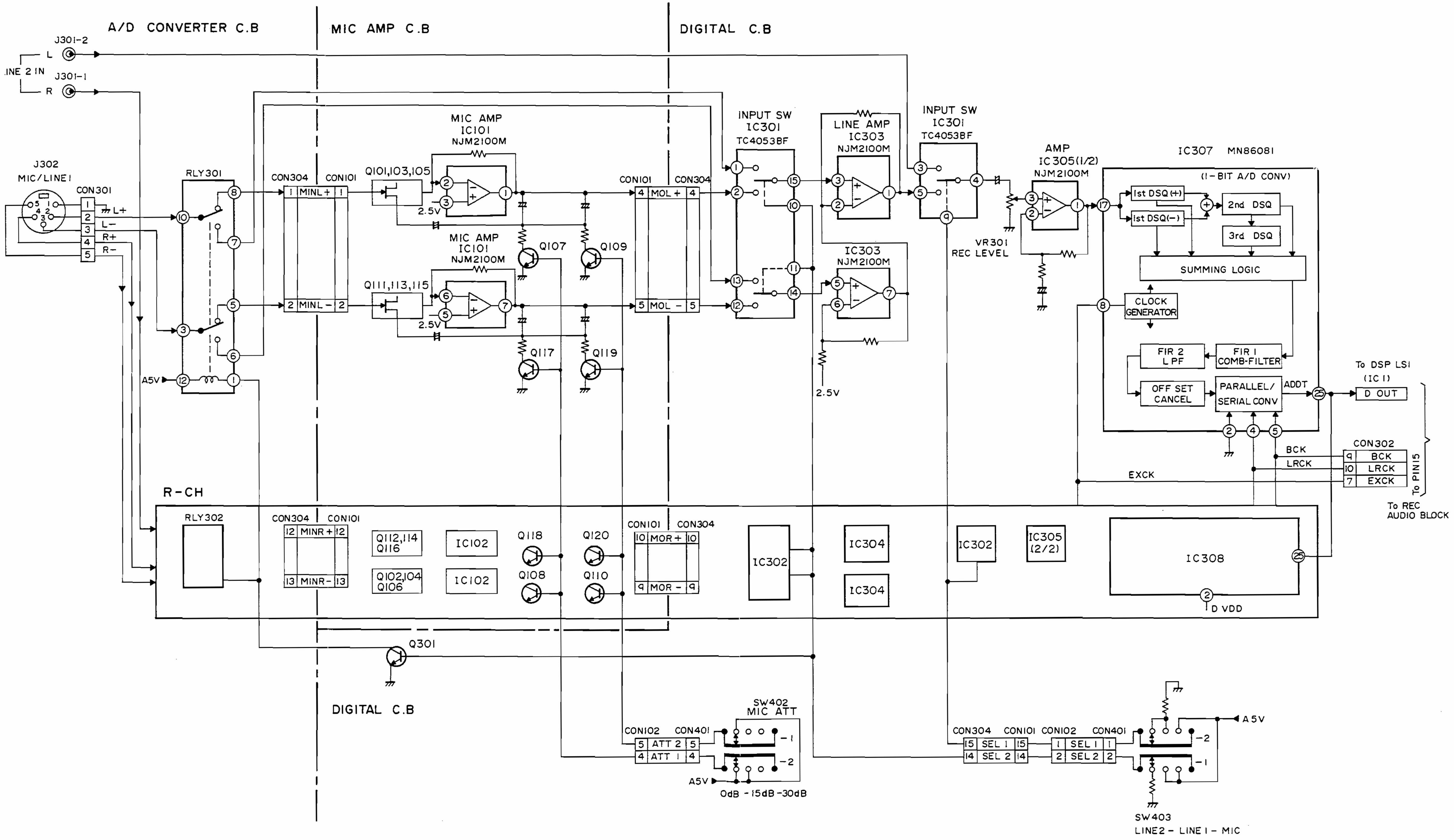

CRLK (TO SYSTEM CONTROL)
IC 8 HD49212 (SERVO LSI)
CFGOUT
CFG AMP
SHAPER
PERIOD ADD/COUNT
DIVIDER
REEL CONTROL
SPEED DET
PHASE DET
OFFSET CONTROL
LPF
PWM
2.5V
REC
PB
ATF ERROR
INTERFACE
CDATA
CCK
CTRL
Vref
33.3Hz
SREF
T FG
S FG
IC10 TA7745F
3-PHASE LOGIC
IC9 NJM2902M
6V
Q7
Q8
Q9
Q10
IC11 NJM2902M
Q11
Q12
D5V
CON9
CON7
LA
LB
LC
VH–
HA–
HA+
HC–
HC+
HB–
HB+
VH+
CAPSTAN MOTOR
FG
U
V
W
HALL DEVICE
MAIN C.B
MECHA

※ The switches not specified are in the REC/PB mode. They are switched by the FF/REW operation.

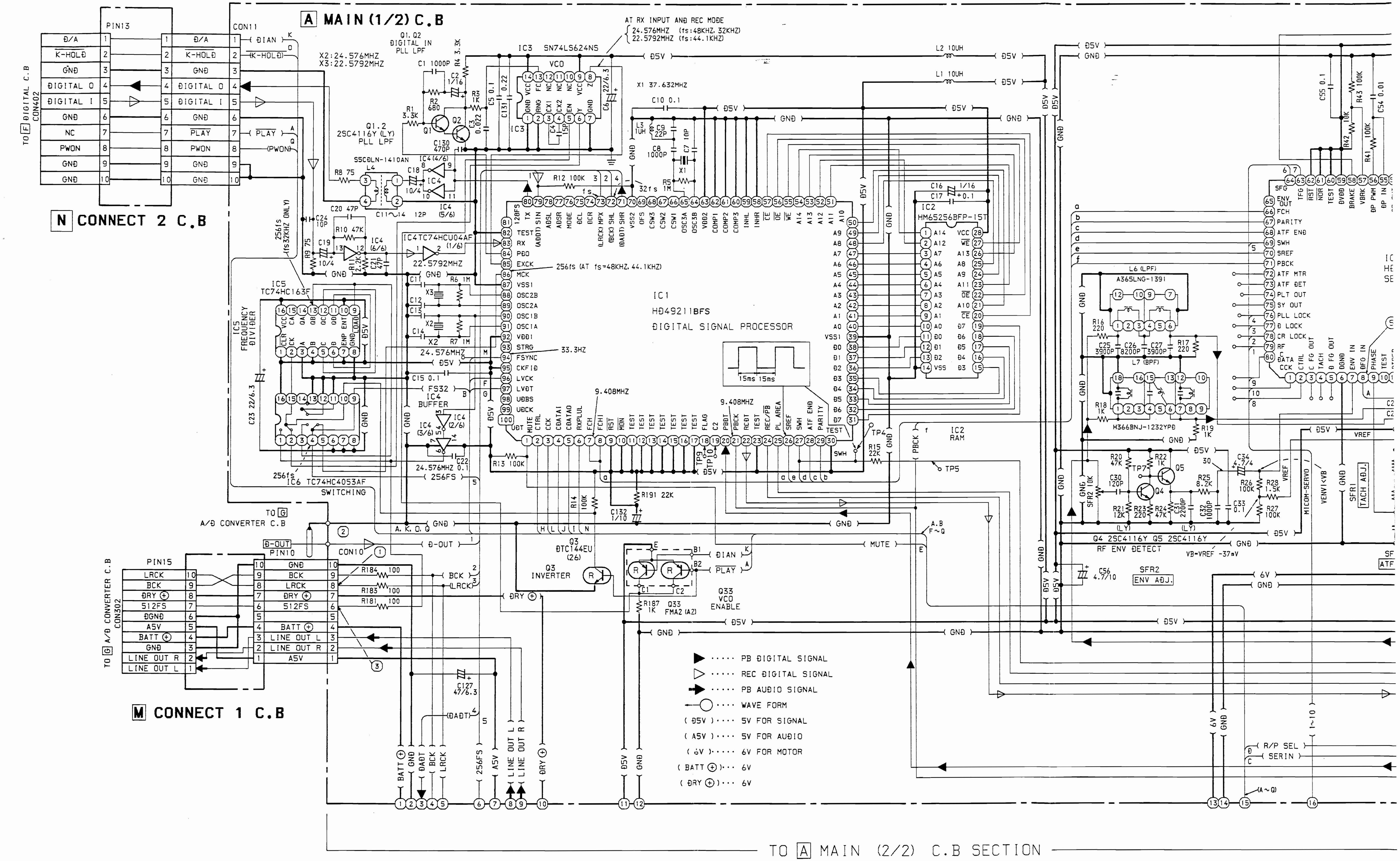
BLOCK DIAGRAM – 6 (ATF SERVO)

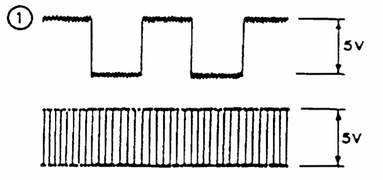

MAIN C.B
I C 8 HD49212 (SERVO LSI)
SAMPLING PULSE GEN
S/H 1
S/H 2A
S/H 2B
S/H 1
S/H 2A
S/H 2B
ATF ERROR
(TO CAPSTAN SERVO)
34
33
32
31
27
ENVELOPE DET
SY OUT
75
SYNC AMP
Vref
21
20
SWH
19
18
SFR3
ATF ADJ.
14
17
L7
BPF
L6
LPF
ATF RF
(PRE AMP C.B)

BLOCK DIAGRAM – 7 (A/D CONVERTER)


A/D CONVERTER C.B
MIC AMP C.B
DIGITAL C.B
J301-2
L
LINE 2 IN
J301-1
R
J302
MIC/LINE1
CON301
L+
L−
R+
R−
RLY301
A5V
CON304
CON101
MINL+
MINL−
Q101,103,105
Q111,113,115
MIC AMP
IC101
NJM2100M
2.5V
Q107
Q109
Q117
Q119
MOL+
MOL−
INPUT SW
IC301
TC4053BF
LINE AMP
IC303
NJM2100M
VR301
REC LEVEL
AMP
IC305(1/2)
NJM2100M
IC307 MN86081
(1-BIT A/D CONV)
1st DSQ(+)
1st DSQ(−)
2nd DSQ
3rd DSQ
SUMMING LOGIC
CLOCK GENERATOR
FIR 2 LPF
FIR 1 COMB-FILTER
OFF SET CANCEL
PARALLEL/ SERIAL CONV
ADDT
To DSP LSI (IC 1)
D OUT
CON302
BCK
LRCK
EXCK
To PIN15
To REC AUDIO BLOCK
R-CH
RLY302
MINR+
MINR−
Q112,114 Q116
Q102,104 Q106
IC102
Q118
Q120
Q108
Q110
MOR+
MOR−
IC302
IC304
IC305 (2/2)
IC308
D VDD
Q301
DIGITAL C.B
SW402
MIC ATT
CON102
CON401
ATT 2
ATT 1
0dB -15dB -30dB
CON304
CON101
CON102
CON401
SEL 1
SEL 2
SW403
LINE2 - LINE1 - MIC

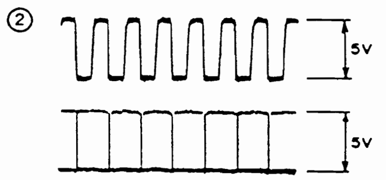
SCHEMATIC DIAGRAM – 1,WAVE FORM – 1 (SERVO)


A MAIN (1/2) C.B
N CONNECT 2 C.B
M CONNECT 1 C.B
TO F DIGITAL C.B CON402
TO G A/D CONVERTER C.B CON302
TO G A/D CONVERTER C.B
PIN13
PIN15
PIN10
CON11
CON10
Ð/A
K-HOLÐ
GNÐ
ÐIGITAL O
ÐIGITAL I
NC
PLAY
PWON
ÐIAN
LRCK
BCK
ÐRY ⊕
512FS
ÐGNÐ
A5V
BATT ⊕
LINE OUT R
LINE OUT L
Ð-OUT
IC1
HD49211BFS
DIGITAL SIGNAL PROCESSOR
IC2
HM65256BFP-15T
IC2 RAM
IC3 SN74LS624NS
VCO
IC4 TC74HCU04AF
IC4 BUFFER
IC5 TC74HC163F
IC5 FREQUENCY DIVIDER
IC6 TC74HC4053AF
SWITCHING
Q1, Q2 DIGITAL IN PLL LPF
Q1, 2 2SC4116Y (LY) PLL LPF
Q3 DTC144EU (26)
Q3 INVERTER
Q33 FMA2 (A2)
Q33 VCO ENABLE
Q4 2SC4116Y Q5 2SC4116Y
RF ENV DETECT
VB=VREF -37mV
SFR1 TACH ADJ.
SFR2 ENV ADJ.
L6 (LPF) A365LNG-1391
L7 (BPF)
H366BNJ-1232YPD
S5CDLN-1410AN
X1 37.632MHZ
X2:24.576MHZ
X3:22.5792MHZ
AT RX INPUT AND REC MODE
24.576MHZ (fs:48KHZ, 32KHZ)
22.5792MHZ (fs:44.1KHZ)
256fs (AT fs=48KHZ, 44.1KHZ)
256fs (fs32KHZ ONLY)
33.3HZ
9.408MHZ
15ms 15ms
L2 10UH
L1 10UH
MUTE
R/P SEL
SERIN
TO A MAIN (2/2) C.B SECTION
▶ ····· PB DIGITAL SIGNAL
▷ ····· REC DIGITAL SIGNAL
➡ ····· PB AUDIO SIGNAL
─○─ ····· WAVE FORM
(D5V) ···· 5V FOR SIGNAL
(A5V) ···· 5V FOR AUDIO
(6V) ···· 6V FOR MOTOR
(BATT ⊕) ··· 6V
(DRY ⊕) ··· 6V

① 

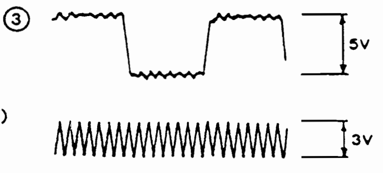
LRCK
AT PB (Fs : 48kHz)

BCK (Fs : 48kHz)
2V/DIV
5 µs/DIV

② 

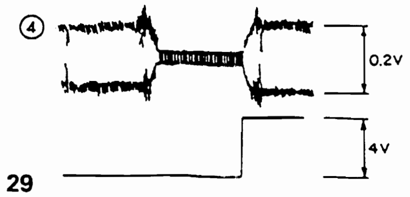
BCK (Fs : 48kHz)

ADDT (AT NO SIGNAL INPUT)
2V/DIV
0.5 µs/DIV

③ 

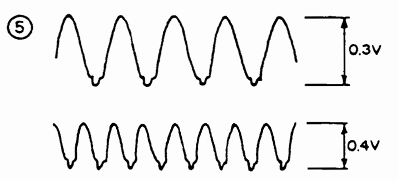
BCK (Fs : 48kHz)

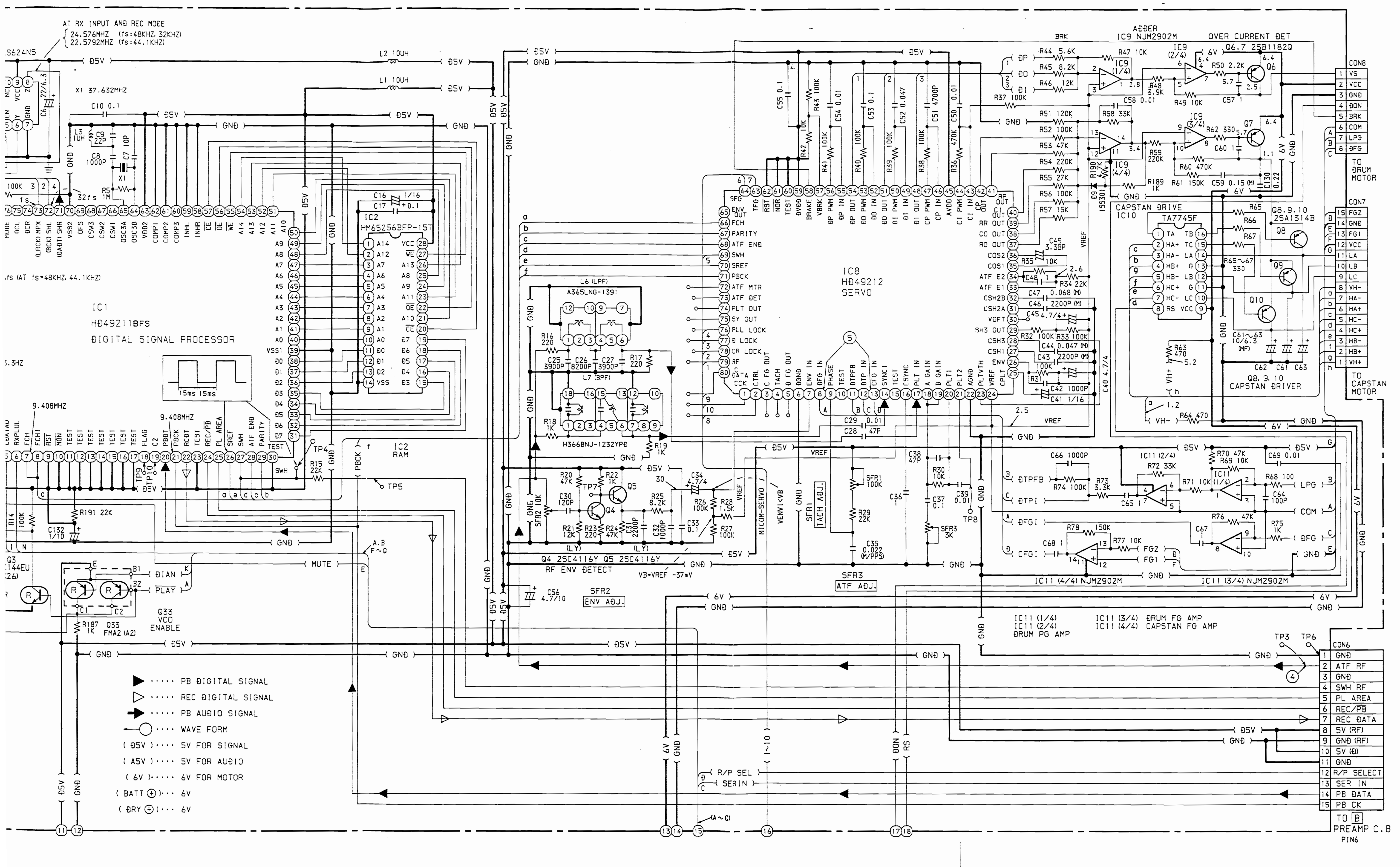
512Fs
2V/DIV
0.1 µs/DIV

④ 

ATF RF
0.1V/DIV
2ms/DIV

SWH
2V/DIV
2ms/DIV

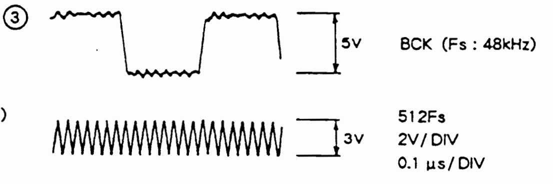
⑤ 

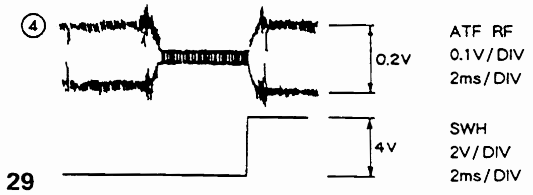

AT RX INPUT AND REC MODE
24.576MHZ (fs:48KHZ, 32KHZ)
22.5792MHZ (fs:44.1KHZ)
X1 37.632MHZ
IC1
HD49211BFS
DIGITAL SIGNAL PROCESSOR
IC2
HM65256BFP-15T
IC2 RAM
IC8
HD49212
SERVO
ADDER
IC9 NJM2902M
OVER CURRENT DET
Q6.7 2SB1182Q
CAPSTAN DRIVE
IC10
TA7745F
Q8.9.10
2SA1314B
Q8.9.10
CAPSTAN DRIVER
L6 (LPF)
A365LNG-1391
L7 (BPF)
H366BNJ-1232YPD
Q4 2SC4116Y Q5 2SC4116Y
RF ENV DETECT
VB=VREF -37mV
SFR1
TACH ADJ.
SFR2
ENV ADJ.
SFR3
ATF ADJ.
IC11 (1/4)
IC11 (2/4)
DRUM PG AMP
IC11 (3/4) DRUM FG AMP
IC11 (4/4) CAPSTAN FG AMP
IC11 (4/4) NJM2902M
IC11 (3/4) NJM2902M
Q33
VCO
ENABLE
Q33
FMA2 (A2)
CON8
TO DRUM MOTOR
CON7
TO CAPSTAN MOTOR
CON6
1 GND
2 ATF RF
3 GND
4 SWH RF
5 PL AREA
6 REC/PB
7 REC DATA
8 5V (RF)
9 GND (RF)
10 5V (D)
11 GND
12 R/P SELECT
13 SER IN
14 PB DATA
15 PB CK
TO B PREAMP C.B
PIN6
▶ ····· PB DIGITAL SIGNAL
▷ ····· REC DIGITAL SIGNAL
➡ ····· PB AUDIO SIGNAL
—○ ···· WAVE FORM
(D5V) ···· 5V FOR SIGNAL
(A5V) ···· 5V FOR AUDIO
(6V) ···· 6V FOR MOTOR
(BATT ⊕) ··· 6V
(DRY ⊕) ··· 6V

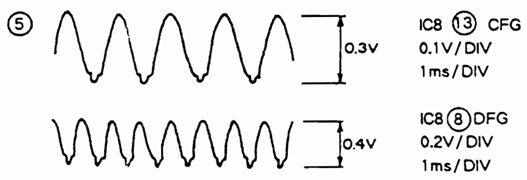
TO [A] MAIN (2/2) C.B SECTION

(Fs : 48kHz)

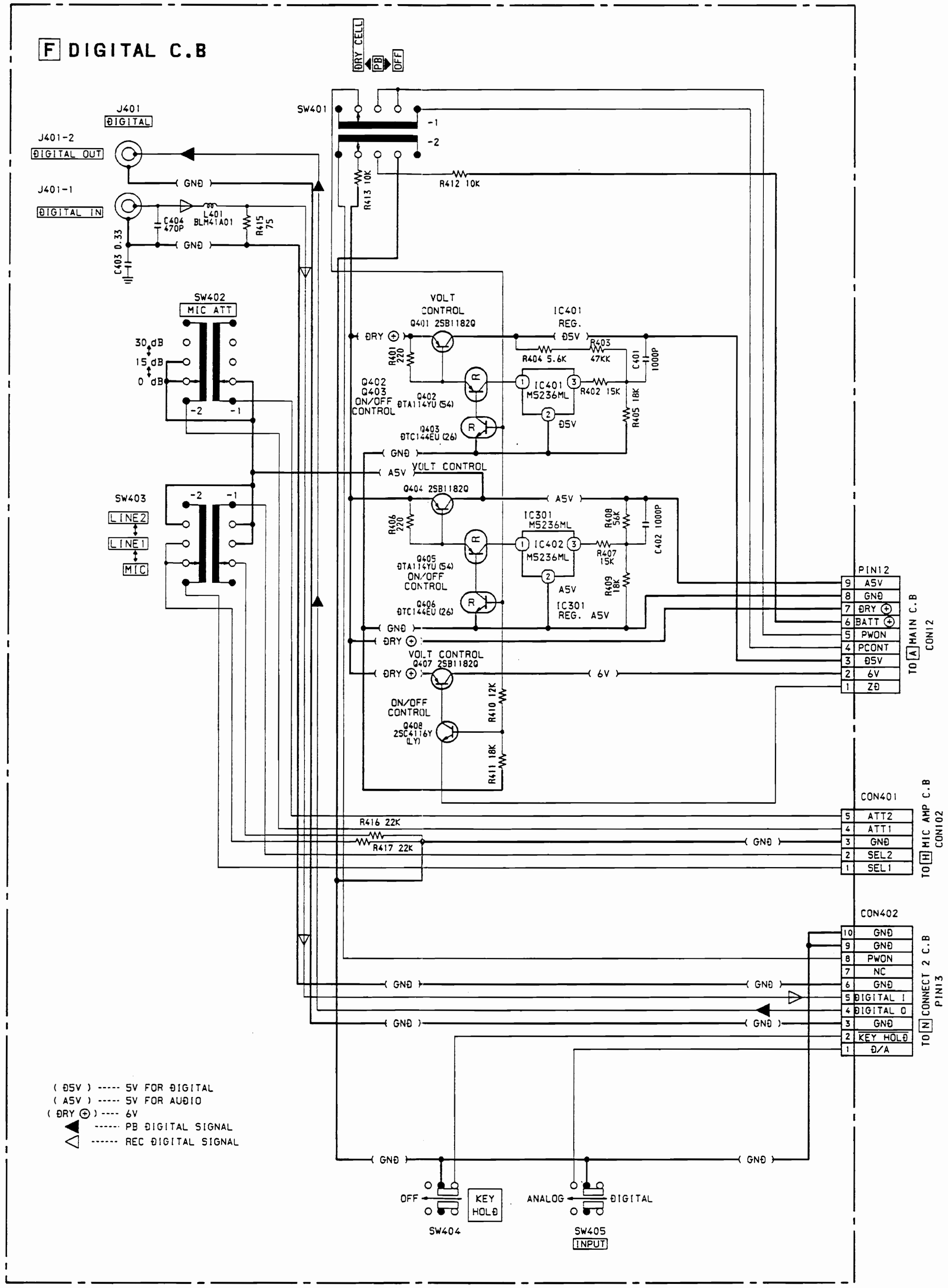
T (AT NO SIGNAL INPUT)
DIV
s/DIV



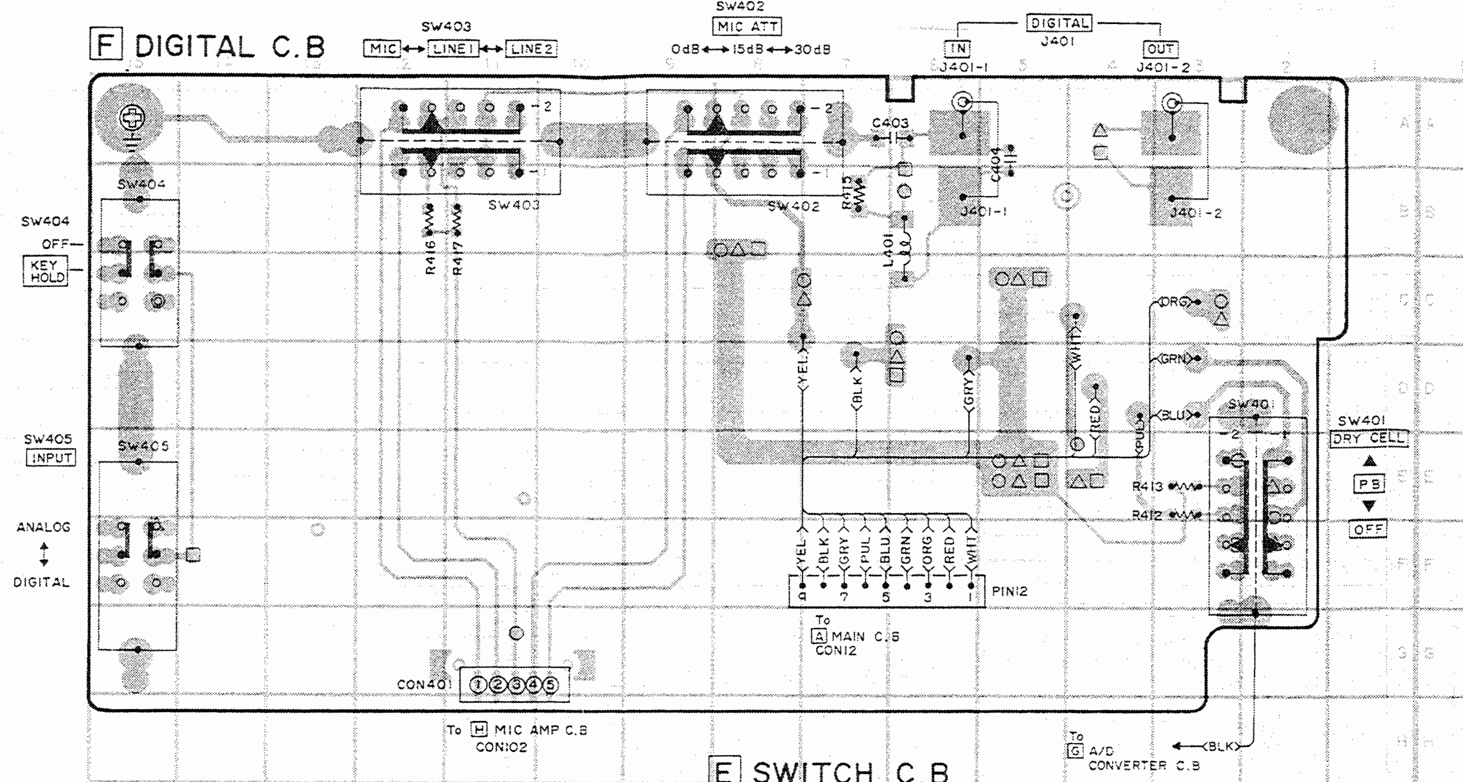




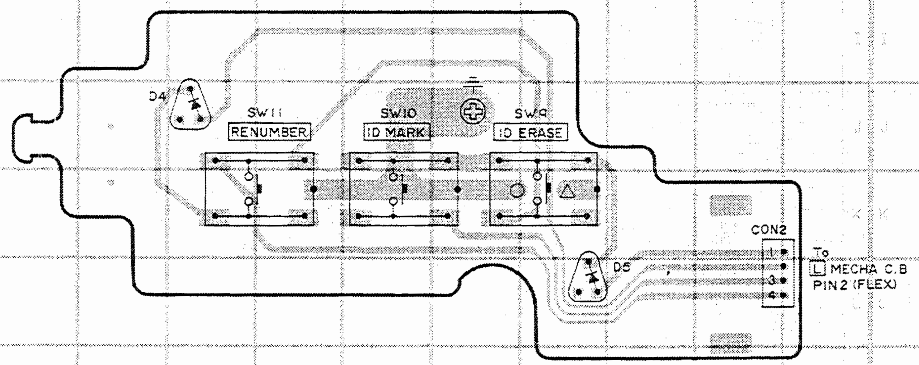
SCHEMATIC DIAGRAM – 2 (DIGITAL)


F DIGITAL C.B
DRY CELL
PB
OFF
SW401
-1
-2
R413 10K
R412 10K
J401
DIGITAL
J401-2
DIGITAL OUT
J401-1
DIGITAL IN
GND
C404 470P
L401 BLM41A01
R415 75
C403 0.33
SW402
MIC ATT
30 dB
15 dB
0 dB
-2
-1
SW403
LINE2
LINE1
MIC
VOLT CONTROL
Q401 2SB1182Q
DRY ⊕
R401 220
Q402 Q403 ON/OFF CONTROL
Q402 DTA114YU (54)
Q403 DTC144EU (26)
IC401 REG.
D5V
R404 5.6K
R403 47KK
C401 1000P
IC401 M5236ML
R402 15K
R405 18K
A5V
VOLT CONTROL
Q404 2SB1182Q
R406 220
IC301 M5236ML
IC402 M5236ML
R408 56K
C402 1000P
R407 15K
R409 18K
Q405 DTA114YU (54)
ON/OFF CONTROL
Q406 DTC144EU (26)
IC301 REG. A5V
VOLT CONTROL
Q407 2SB1182Q
6V
ON/OFF CONTROL
Q408 2SC4116Y (LY)
R410 12K
R411 18K
PIN12
9 A5V
8 GND
7 DRY ⊕
6 BATT ⊕
5 PWON
4 PCONT
3 D5V
2 6V
1 ZD
TO A MAIN C.B CON12
CON401
5 ATT2
4 ATT1
3 GND
2 SEL2
1 SEL1
TO H MIC AMP C.B CON102
R416 22K
R417 22K
CON402
10 GND
9 GND
8 PWON
7 NC
6 GND
5 DIGITAL I
4 DIGITAL O
3 GND
2 KEY HOLD
1 D/A
TO N CONNECT 2 C.B PIN13
(D5V) ----- 5V FOR DIGITAL
(A5V) ----- 5V FOR AUDIO
(DRY ⊕) ---- 6V
◀ ------ PB DIGITAL SIGNAL
◁ ------ REC DIGITAL SIGNAL
OFF
KEY HOLD
SW404
ANALOG
DIGITAL
SW405
INPUT

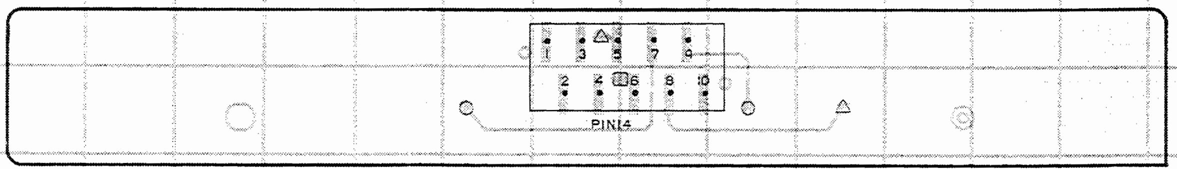
F DIGITAL C.B


SW403
MIC ↔ LINE1 ↔ LINE2
SW402
MIC ATT
0dB ↔ 15dB ↔ 30dB
DIGITAL
J401
IN
J401-1
OUT
J401-2
C403
C404
SW404
OFF
KEY HOLD
SW405
INPUT
ANALOG
DIGITAL
R416
R417
R415
L401
YEL
BLK
GRY
PUL
WHT
RED
ORG
GRN
BLU
SW401
DRY CELL
PB
OFF
R413
R412
PIN12
To A MAIN C.B CON12
CON401
To H MIC AMP C.B CON102
To G A/D CONVERTER C.B
BLK

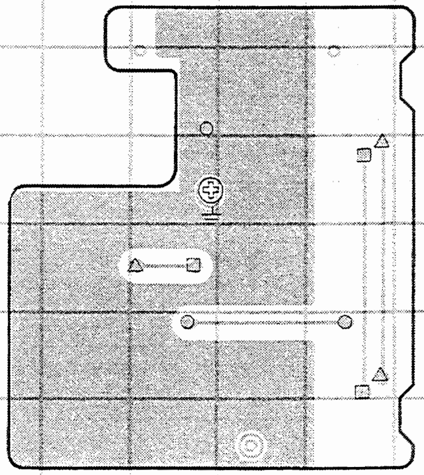
E SWITCH C.B


D4
SW11
RENUMBER
SW10
ID MARK
SW9
ID ERASE
D5
CON2
To L MECHA C.B PIN2 (FLEX)

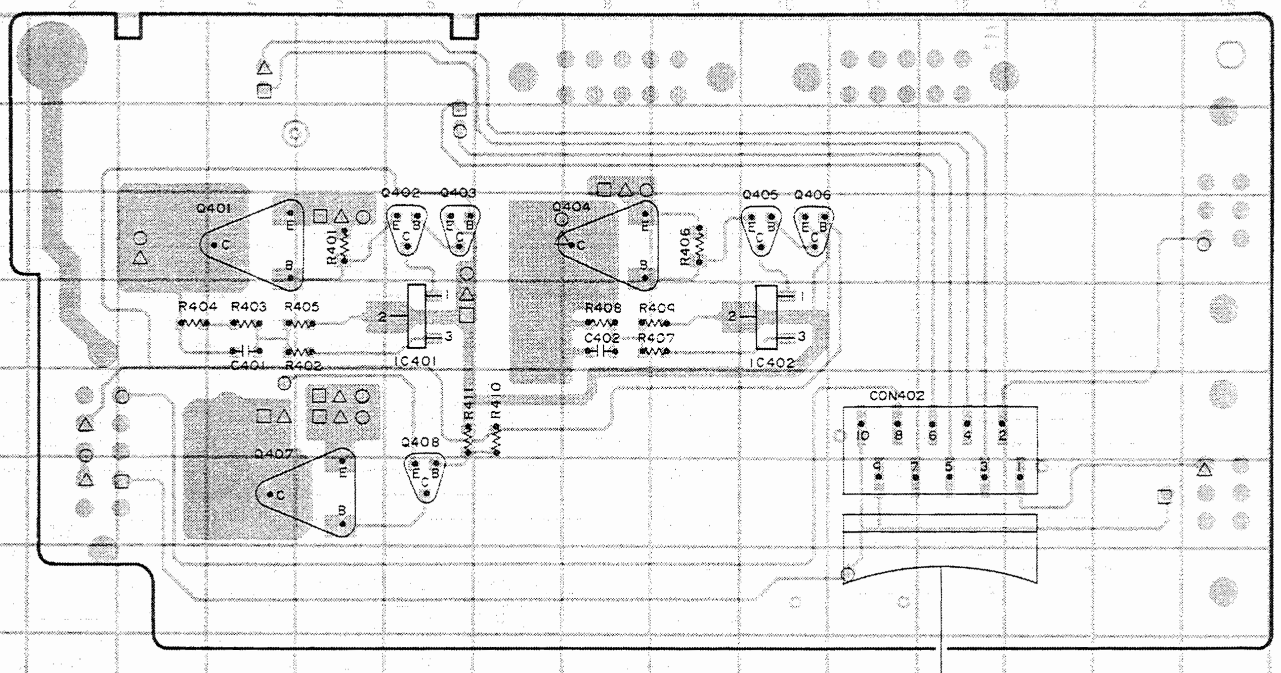
D FRONT SWITCH C.B


To C FRONT C.B CON14
PIN14

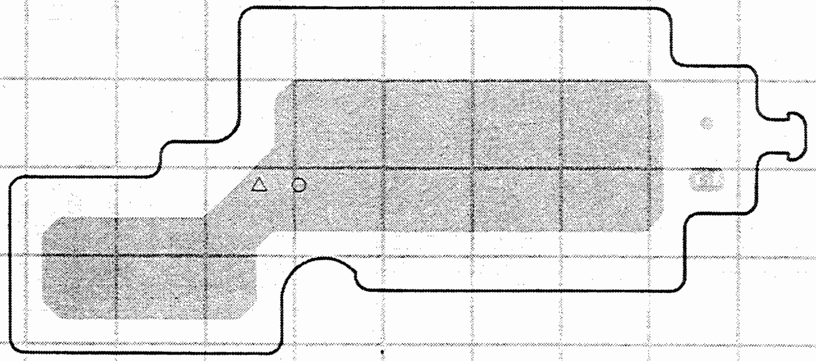
M CONNECT 1 C.B



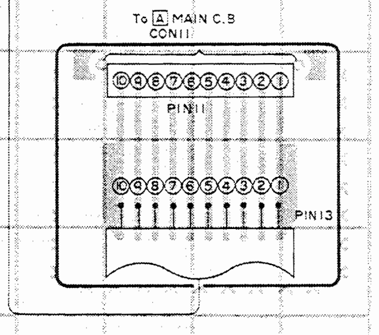
F DIGITAL C.B


Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
R401
R402
R403
R404
R405
R406
R407
R408
R409
R410
R411
C401
C402
IC401
IC402
CON402

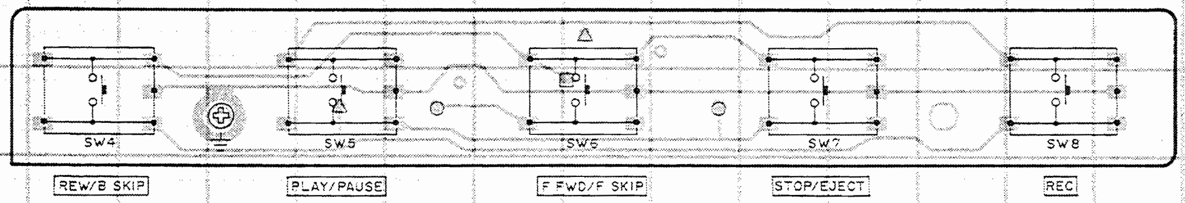
E SWITCH C.B



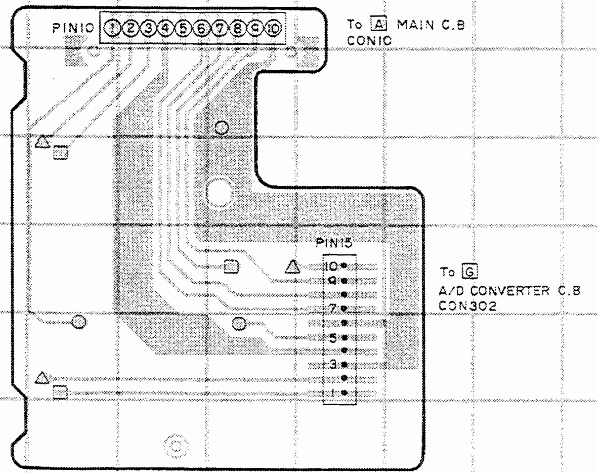
N CONNECT 2 C.B


To A MAIN C.B CON11
PIN11
PIN13

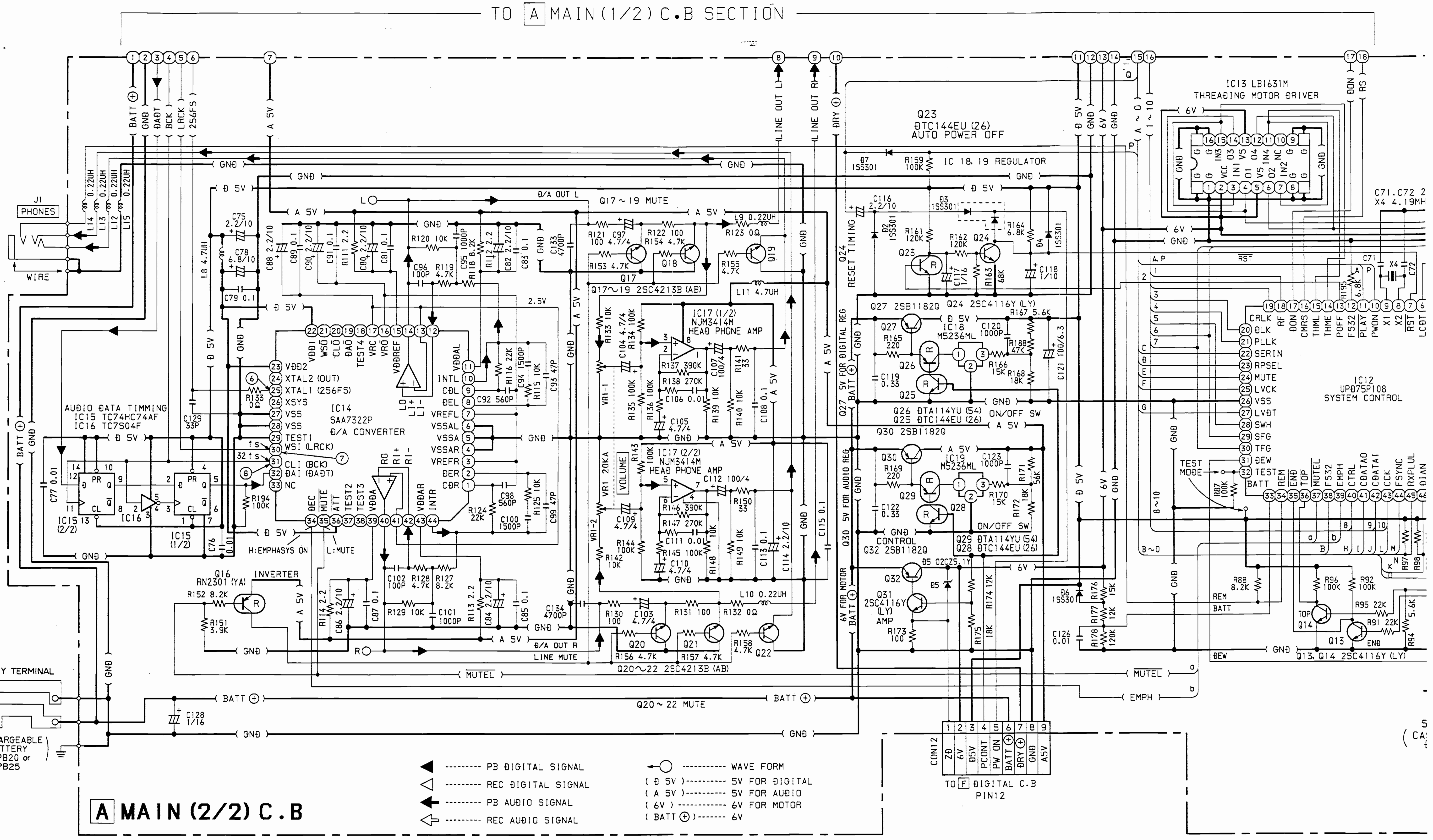
D FRONT SWITCH C.B

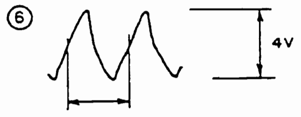

SW4
SW5
SW6
SW7
SW8
REW/B SKIP
PLAY/PAUSE
F FWD/F SKIP
STOP/EJECT
REC

M CONNECT 1 C.B


PIN10
To A MAIN C.B CON10
PIN15
To G A/D CONVERTER C.B CON302

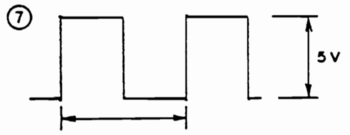
SCHEMATIC DIAGRAM – 3,WAVE FORM – 2 (SYSTEM CONTROL)


TO A MAIN (1/2) C.B SECTION
BATT ⊕
GND
ĐAĐT
BCK
LRCK
256FS
A 5V
LINE OUT L
LINE OUT R
DRY ⊕
Đ 5V
6V
A ~ 0
1 ~ 10
ĐON
RS
J1 PHONES
WIRE
L14 0.22UH
L13 0.22UH
L12 0.22UH
L15 0.22UH
L8 4.7UH
C75 2.2/10
C78 6.8/10
C79 0.1
AUDIO DATA TIMMING
IC15 TC74HC74AF
IC16 TC7S04F
IC14
SAA7322P
D/A CONVERTER
VDD2
XTAL2 (OUT)
XTAL1 (256FS)
XSYS
VSS
TEST1
WSI (LRCK)
CLI (BCK)
DAI (DADT)
NC
H:EMPHASYS ON
L:MUTE
Q16
RN2301 (YA)
INVERTER
R152 8.2K
R151 3.9K
D/A OUT L
D/A OUT R
Q17 ~ 19 MUTE
Q17~19 2SC4213B (AB)
Q20~22 2SC4213B (AB)
Q20 ~ 22 MUTE
LINE MUTE
IC17 (1/2)
NJM3414M
HEAD PHONE AMP
IC17 (2/2)
NJM3414M
HEAD PHONE AMP
VR1 20KA
VOLUME
MUTEL
Q23
DTC144EU (26)
AUTO POWER OFF
IC 18, 19 REGULATOR
RESET TIMING
5V FOR DIGITAL REG
5V FOR AUDIO REG
6V FOR MOTOR
Q27 2SB1182Q
Q24 2SC4116Y (LY)
IC18
M5236ML
Q26 DTA114YU (54)
Q25 DTC144EU (26)
ON/OFF SW
Q30 2SB1182Q
IC19
M5236ML
Q29 DTA114YU (54)
Q28 DTC144EU (26)
CONTROL
Q32 2SB1182Q
Q31
2SC4116Y
(LY)
AMP
IC13 LB1631M
THREADING MOTOR DRIVER
C71.C72
X4 4.19MH
IC12
UPD75P108
SYSTEM CONTROL
CRLK
DLK
PLLK
SERIN
RPSEL
MUTE
LVCK
VSS
LVDT
SWH
SFG
TFG
DEW
TEST
TEST MODE
BATT
REM
END
TOP
MUTEL
FS32
EMPH
CTRL
CDATAO
CCK
FSYNC
RXFLUL
Q13, Q14 2SC4116Y (LY)
EMPH
CON12
ZD
6V
D5V
PCONT
PW ON
BATT ⊕
DRY ⊕
GND
A5V
TO F DIGITAL C.B
PIN12
BATTERY TERMINAL
(RECHARGEABLE BATTERY PB20 or PB25)
C128 1/16
A MAIN (2/2) C.B
PB DIGITAL SIGNAL
REC DIGITAL SIGNAL
PB AUDIO SIGNAL
REC AUDIO SIGNAL
WAVE FORM
(D 5V) 5V FOR DIGITAL
(A 5V) 5V FOR AUDIO
(6V) 6V FOR MOTOR
(BATT ⊕) 6V



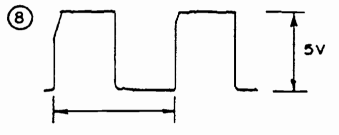
IC14 ㉕
XTAL 1

Fs = 48kHz ···0.08 μ sec
Fs = 44.1kHz···0.09 μ sec
Fs = 32kHz ···0.12 μ sec



IC14 ㉚
WSI

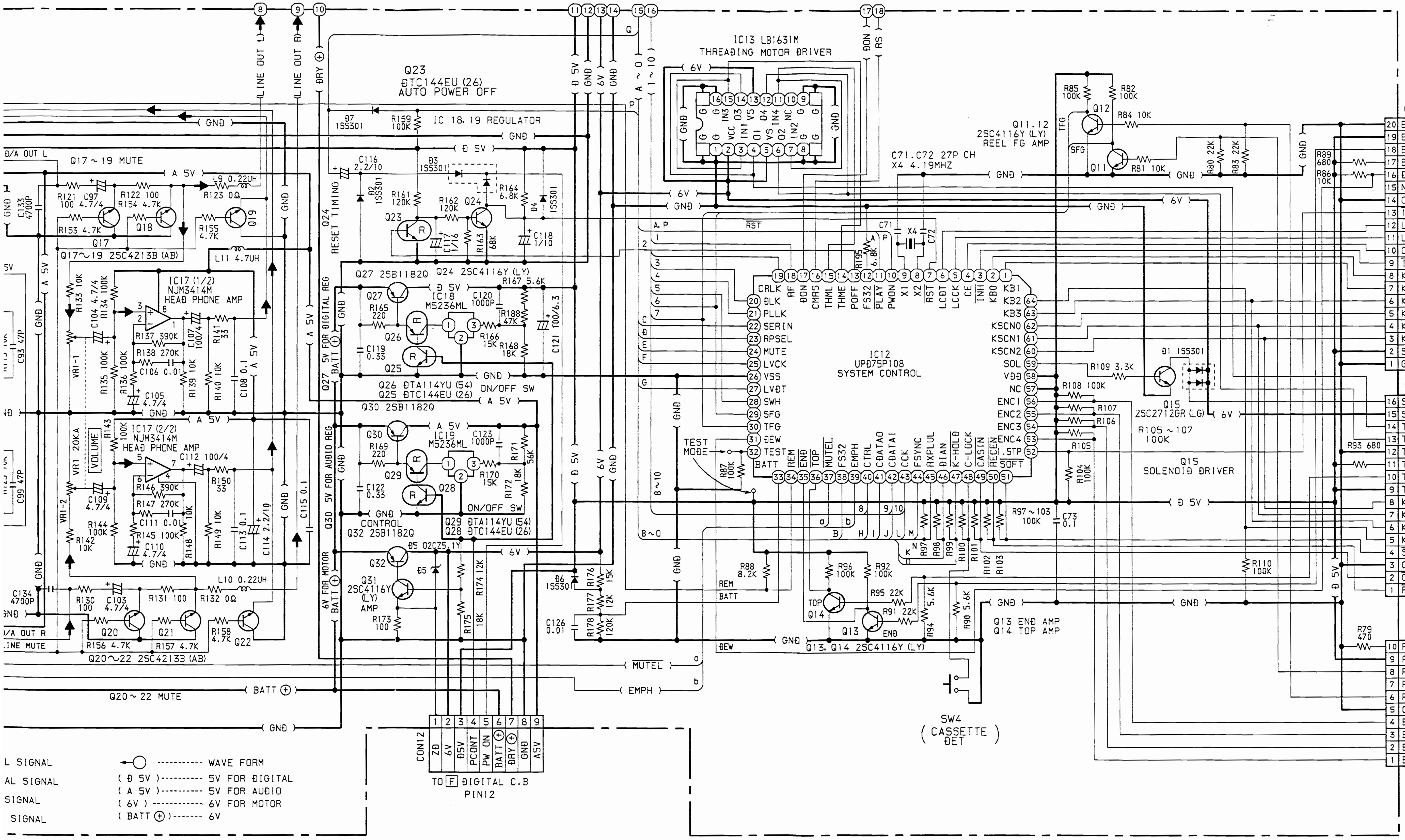
Fs = 48kHz ···20.8 μ sec
Fs = 44.1kHz···22.7 μ sec
Fs = 32kHz ···31.25 μ sec



IC14 ㉛
CLI

Fs = 48kHz ···0.65 μ sec
Fs = 44.1kHz···0.7 μ sec
Fs = 32kHz ···0.98 μ sec

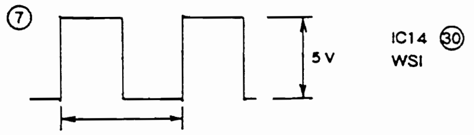
MAIN(1/2) C.B SECTION



IC13 LB1631M
THREADING MOTOR DRIVER
Q23
DTC144EU (26)
AUTO POWER OFF
IC 18, 19 REGULATOR
Q17 ~ 19 MUTE
Q17~19 2SC4213B (AB)
IC17 (1/2)
NJM3414M
HEAD PHONE AMP
IC17 (2/2)
NJM3414M
HEAD PHONE AMP
VR1 20KA VOLUME
Q20~22 2SC4213B (AB)
Q20 ~ 22 MUTE
Q24 RESET TIMING
Q24 2SC4116Y (LY)
Q27 2SB1182Q
IC18 M5236ML
Q26 DTA114YU (54)
Q25 DTC144EU (26)
ON/OFF SW
Q30 2SB1182Q
IC19 M5236ML
Q29 DTA114YU (54)
Q28 DTC144EU (26)
Q27 5V FOR DIGITAL REG
Q30 5V FOR AUDIO REG
6V FOR MOTOR
CONTROL
Q32 2SB1182Q
Q31 2SC4116Y (LY) AMP
LINE OUT L
LINE OUT R
DRY ⊕
IC12
UPD75P108
SYSTEM CONTROL
C71.C72 27P CH
X4 4.19MHZ
Q11.12
2SC4116Y (LY)
REEL FG AMP
D1 1SS301
Q15
2SC2712GR (LG)
R105 ~ 107
100K
Q15
SOLENOID DRIVER
TEST MODE
Q13 END AMP
Q14 TOP AMP
Q13, Q14 2SC4116Y (LY)
SW4
(CASSETTE DET)
MUTEL
EMPH
BATT ⊕
CON12
1 ZD
2 6V
3 D5V
4 PCONT
5 PW ON
6 BATT ⊕
7 DRY ⊕
8 GND
9 A5V
TO F DIGITAL C.B PIN12
CON4
20 END-K
19 END-C
18 END-E
17 END-A
16 DEW
15 NC
14 COM (G)
13 1.5TP
12 LCDT
11 LCCK
10 CE
9 INH
8 KB0
7 KB1
6 KB3
5 KSCN 0
4 KSCN 1
3 KSCN 2
2 5V
1 GND
TO L MECHA C.B PIN4 (FLEX)
CON5
16 SOL 2
15 SOL 1
14 THM 1
13 THM 2
12 TOP-K
11 TOP-A
10 TOP-E
9 TOP-C
8 KSCN2
7 KSCN1
6 KB3
5 KB2
4 SOFT
3 COM (G)
2 CAS IN
1 REC EN
TO L MECHA C.B PIN5 (FLEX)
CON9
10 PD-K
9 PDAPTC
8 PT-ES
7 PTTEST
6 PT-ET
5 COM (G)
4 ENC1
3 ENC2
2 ENC3
1 ENC4
TO MECHANISM (MODE SW ASSY)

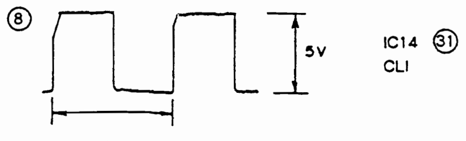
L SIGNAL
AL SIGNAL
SIGNAL
SIGNAL

←○ ---------- WAVE FORM
(Đ 5V)---------- 5V FOR ĐIGITAL
(A 5V)---------- 5V FOR AUDIO
(6V) ---------- 6V FOR MOTOR
(BATT ⊕)------- 6V



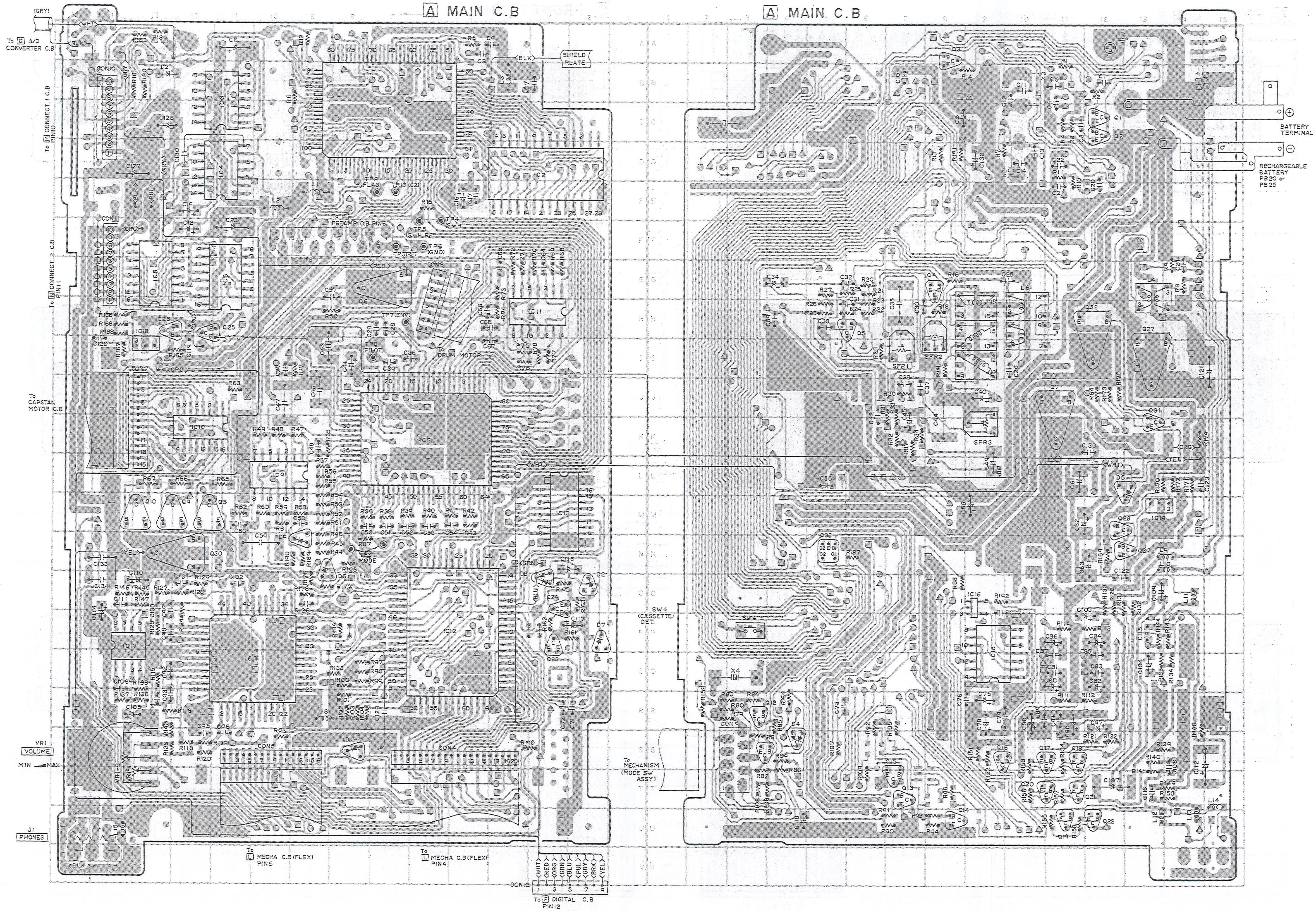
⑦
5V
IC14 ㉚
WSI

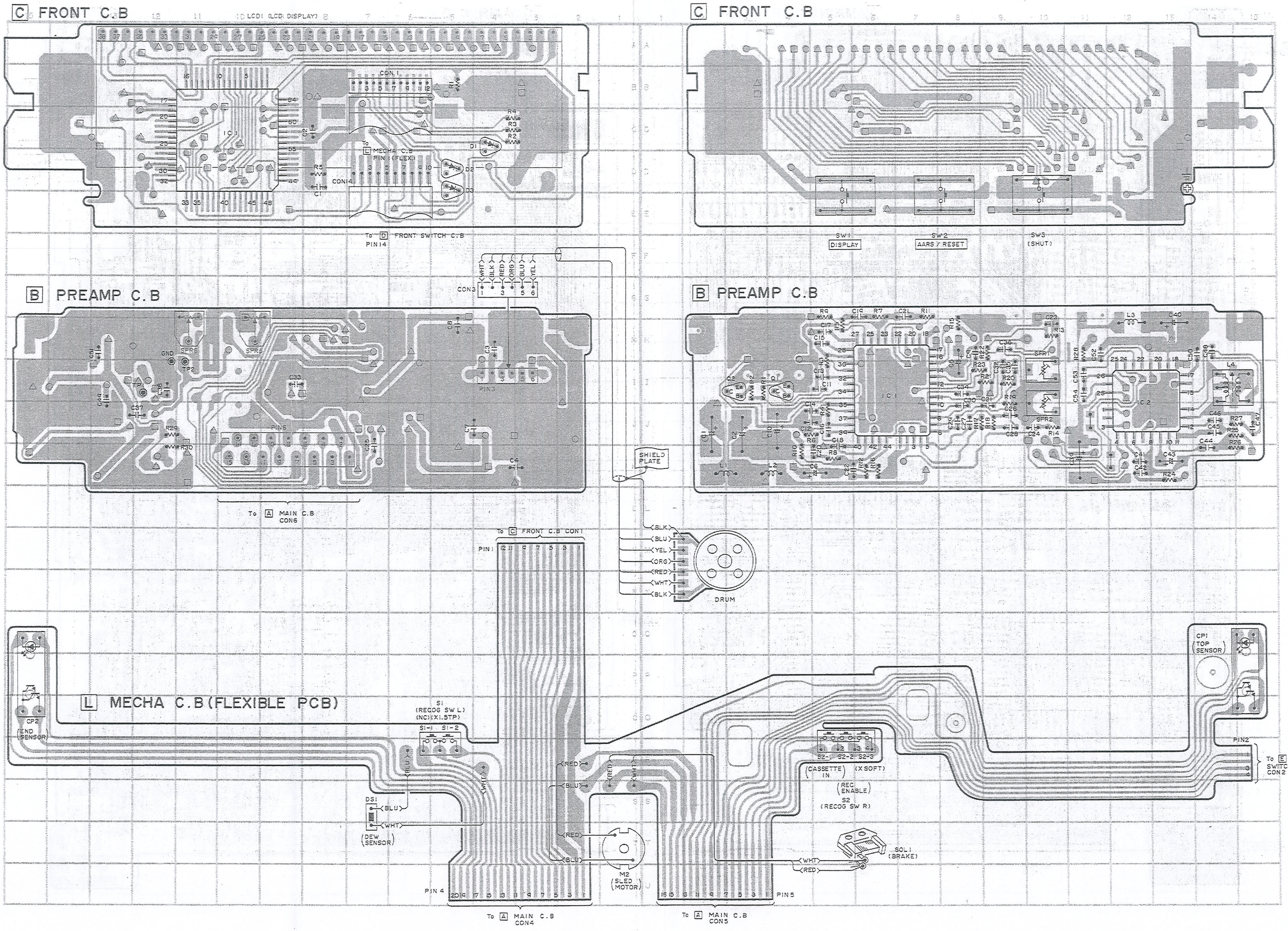
Fs = 48kHz ···20.8 μ sec
Fs = 44.1kHz···22.7 μ sec
Fs = 32kHz ···31.25 μ sec



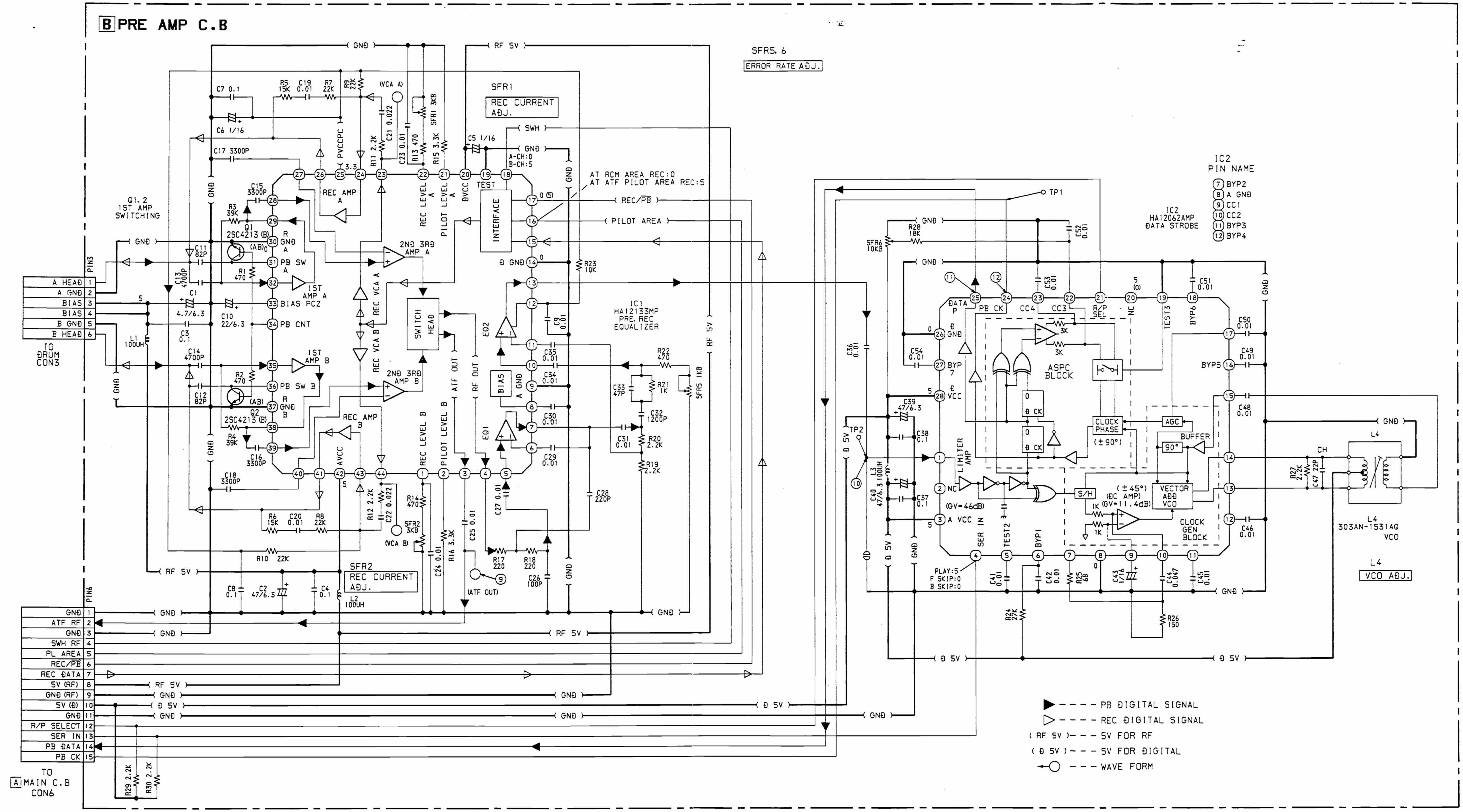
⑧
5V
IC14 ㉛
CLI

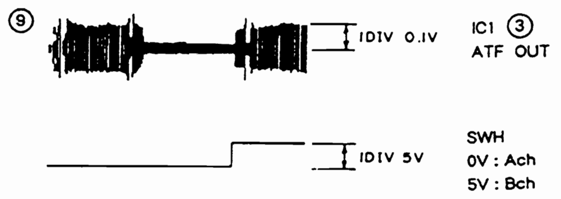
Fs = 48kHz ···0.65 μ sec
Fs = 44.1kHz···0.7 μ sec
Fs = 32kHz ···0.98 μ sec

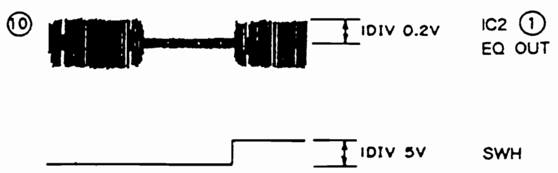

A MAIN C.B
A MAIN C.B
(GRY)
To G A/D CONVERTER C.B
To N CONNECT 1 C.B PIN10
To N CONNECT 2 C.B PIN11
To CAPSTAN MOTOR C.B
SHIELD PLATE
TP9 (FLAG)
TP10 (C21)
To PREAMP C.B PIN6
TP4 (SWH)
TP5 (SWH RF)
TP3(RF)
TP6 (GND)
TP7(ENV)
TP8 (PILOT)
To DRUM MOTOR
TEST MODE
VR1 VOLUME
MIN MAX
J1 PHONES
To L MECHA C.B (FLEX) PIN5
To L MECHA C.B (FLEX) PIN4
CON12
To F DIGITAL C.B PIN12
SW4 (CASSETTE) DET.
To MECHANISM (MODE SW ASSY)
BATTERY TERMINAL
RECHARGEABLE BATTERY PB20 or PB25
SFR1
SFR2
SFR3

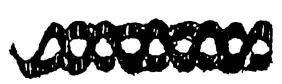

C FRONT C.B
LCD1 (LCD DISPLAY)
CON1
IC1
R1
R2
R3
R4
R5
C1
C2
D1
D2
D3
CON14
To L MECHA C.B PIN1 (FLEX)
To D FRONT SWITCH C.B PIN14
C FRONT C.B
SW1 DISPLAY
SW2 AARS / RESET
SW3 (SHUT)
CON3
WHT
BLK
RED
ORG
BLU
YEL
B PREAMP C.B
GND
TP1
TP2
SFR1
SFR2
C33
C37
C38
C39
C51
C3
C4
C7
C8
C25
R29
R30
PIN3
PIN6
To A MAIN C.B CON6
B PREAMP C.B
IC1
IC2
Q1
Q2
L1
L2
L3
L4
SFR1
SFR2
SHIELD PLATE
To C FRONT C.B CON1
PIN1
BLK
BLU
YEL
ORG
RED
WHT
BLK
DRUM
L MECHA C.B (FLEXIBLE PCB)
CP1 (TOP SENSOR)
CP2 (END SENSOR)
S1 (RECOG SW L) (NC)(X1.5TP)
S1-1
S1-2
BLU
WHT
DS1 (DEW SENSOR)
RED
BLU
M2 (SLED MOTOR)
S2-1 (CASSETTE IN)
S2-2 (REC ENABLE)
S2-3 (XSOFT)
S2 (RECOG SW R)
SOL1 (BRAKE)
WHT
RED
PIN2
To E SWITCH C.B CON2
PIN4
To A MAIN C.B CON4
PIN5
To A MAIN C.B CON5

SCHEMATIC DIAGRAM – 4,WAVE FORM – 3 (PRE AMP)

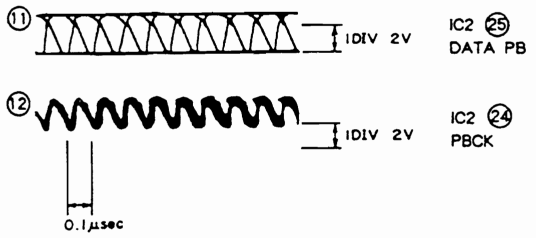

B PRE AMP C.B
SFR5, 6
ERROR RATE ADJ.
SFR1
REC CURRENT ADJ.
SFR2
REC CURRENT ADJ.
IC1
HA12133MP
PRE, REC EQUALIZER
IC2
HA12062AMP
DATA STROBE
IC2
PIN NAME
⑦ BYP2
⑧ A GND
⑨ CC1
⑩ CC2
⑪ BYP3
⑫ BYP4
Q1, 2
1ST AMP SWITCHING
AT RCM AREA REC:0
AT ATF PILOT AREA REC:5
A-CH:0
B-CH:5
REC AMP A
REC AMP B
1ST AMP A
1ST AMP B
2ND 3RD AMP A
2ND 3RD AMP B
INTERFACE
SWITCH HEAD
BIAS
EQ1
EQ2
ASPC BLOCK
CLOCK PHASE (±90°)
AGC
BUFFER
90°
S/H
VECTOR ADD VCO
CLOCK GEN BLOCK
LIMITER AMP
(GV=46dB)
(±45°) (DC AMP) (GV=11.4dB)
PLAY:5
F SKIP:0
B SKIP:0
TP1
TP2
L4
303AN-1531AQ
VCO
L4
VCO ADJ.
TO DRUM CON3
PIN3
A HEAD 1
A GND 2
BIAS 3
BIAS 4
B GND 5
B HEAD 6
PIN6
GND 1
ATF RF 2
GND 3
SWH RF 4
PL AREA 5
REC/PB 6
REC DATA 7
5V (RF) 8
GND (RF) 9
5V (D) 10
GND 11
R/P SELECT 12
SER IN 13
PB DATA 14
PB CK 15
TO A MAIN C.B CON6
▶ ---- PB DIGITAL SIGNAL
▷ ---- REC DIGITAL SIGNAL
(RF 5V) --- 5V FOR RF
(D 5V) --- 5V FOR DIGITAL
–○ --- WAVE FORM



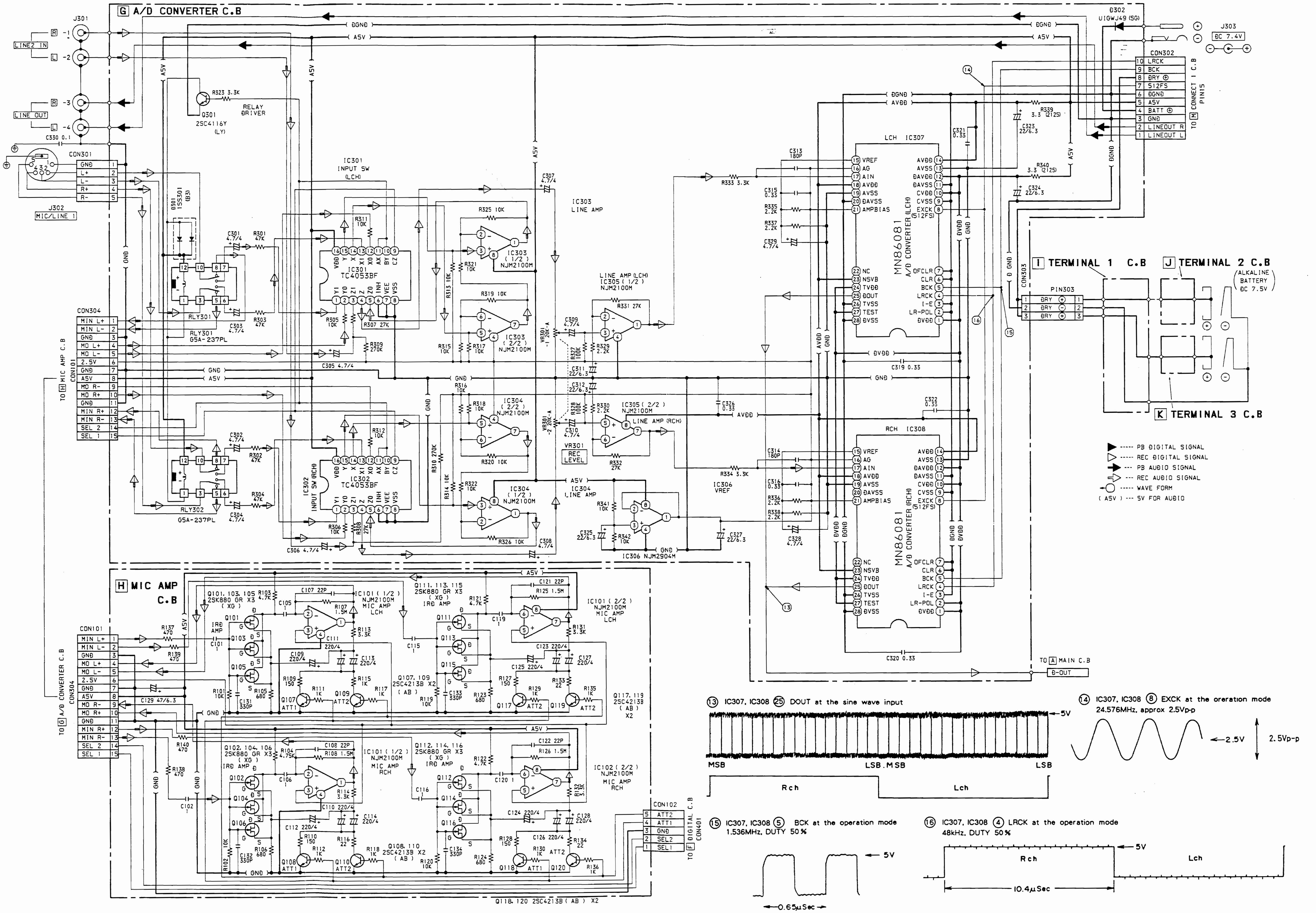


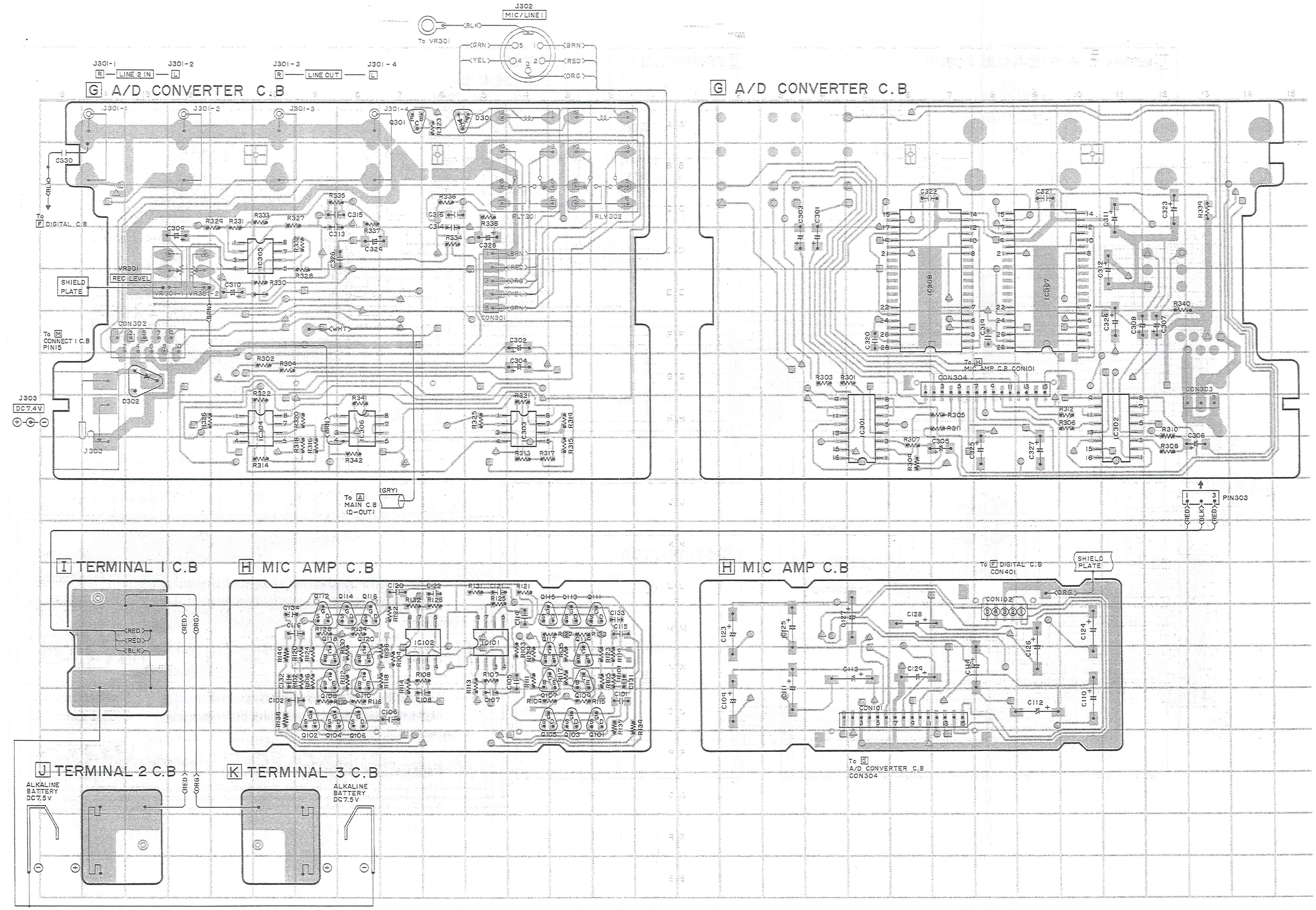


IC2 ①
EQ OUT
EXPANDED WAVEFORM
(eye pattern)

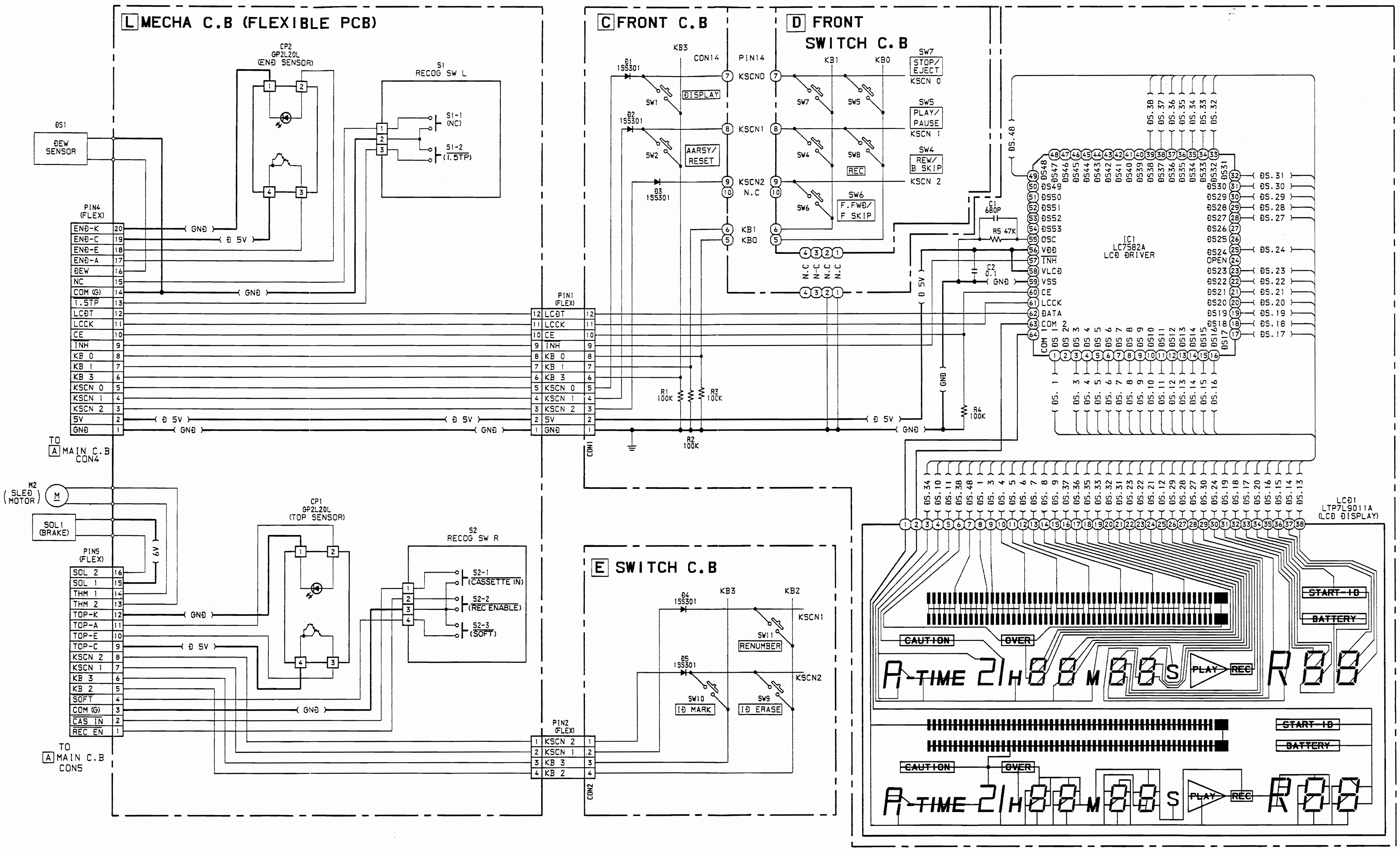


SCHEMATIC DIAGRAM – 5,WAVE FORM – 4 (A/D CONVERTER)

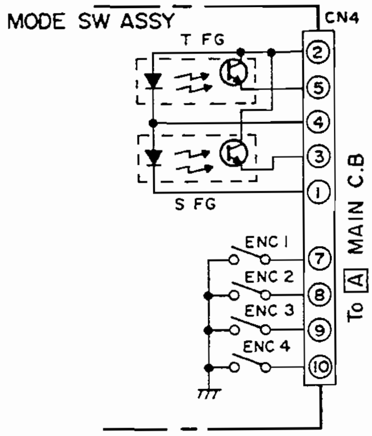

G A/D CONVERTER C.B
H MIC AMP C.B
I TERMINAL 1 C.B
J TERMINAL 2 C.B
K TERMINAL 3 C.B
J301
LINE2 IN
LINE OUT
C330 0.1
CON301
J302
MIC/LINE 1
Q301 2SC4116Y (LY)
R323 3.3K
RELAY DRIVER
D301 1SS301 (B3)
RLY301 G5A-237PL
RLY302 G5A-237PL
IC301 INPUT SW (LCH)
IC301 TC4053BF
IC302 INPUT SW (RCH)
IC302 TC4053BF
IC303 LINE AMP
IC303 (1/2) NJM2100M
IC303 (2/2) NJM2100M
IC304 (1/2) NJM2100M
IC304 (2/2) NJM2100M
IC304 LINE AMP
LINE AMP (LCH) IC305 (1/2) NJM2100M
IC305 (2/2) NJM2100M LINE AMP (RCH)
IC306 VREF
IC306 NJM2904M
VR301 REC LEVEL
LCH IC307
MN86081 A/D CONVERTER (LCH)
RCH IC308
MN86081 A/D CONVERTER (RCH)
D302 U1GWJ49 (SG)
J303 DC 7.4V
CON302
TO M CONNECT 1 C.B PIN15
LRCK
BCK
DRY ⊕
512FS
DGND
A5V
BATT ⊕
GND
LINEOUT R
LINEOUT L
CON303
PIN303
ALKALINE BATTERY DC 7.5V
TO A MAIN C.B
D-OUT
CON304
TO H MIC AMP C.B CON101
MIN L+
MIN L-
MD L+
MD L-
2.5V
A5V
MD R-
MD R+
MIN R+
MIN R-
SEL 2
SEL 1
CON101
TO G A/D CONVERTER C.B CON304
Q101, 103, 105 2SK880 GR X3 (XG)
Q102, 104, 106 2SK880 GR X3 (XG)
IRD AMP
IC101 (1/2) NJM2100M MIC AMP LCH
IC101 (2/2) NJM2100M MIC AMP LCH
IC101 (1/2) NJM2100M MIC AMP RCH
IC102 (2/2) NJM2100M MIC AMP RCH
Q111, 113, 115 2SK880 GR X3 (XG) IRD AMP
Q112, 114, 116 2SK880 GR X3 (XG) IRD AMP
Q107, 109 2SC4213B X2 (AB)
Q108, 110 2SC4213B X2 (AB)
Q117, 119 2SC4213B (AB) X2
Q118, 120 2SC4213B (AB) X2
ATT1
ATT2
CON102
TO F DIGITAL C.B CON401
▶ ---- PB DIGITAL SIGNAL
▷ ---- REC DIGITAL SIGNAL
➡ --- PB AUDIO SIGNAL
⇨ --- REC AUDIO SIGNAL
-○ ---- WAVE FORM
(A5V) --- 5V FOR AUDIO
⑬ IC307, IC308 ㉕ DOUT at the sine wave input
5V
MSB
LSB.MSB
LSB
Rch
Lch
⑭ IC307, IC308 ⑧ EXCK at the oreration mode
24.576MHz, approx 2.5Vp-p
2.5V
2.5Vp-p
⑮ IC307, IC308 ⑤ BCK at the operation mode
1.536MHz, DUTY 50%
5V
0.65μSec
⑯ IC307, IC308 ④ LRCK at the operation mode
48kHz, DUTY 50%
5V
Rch
Lch
10.4μSec

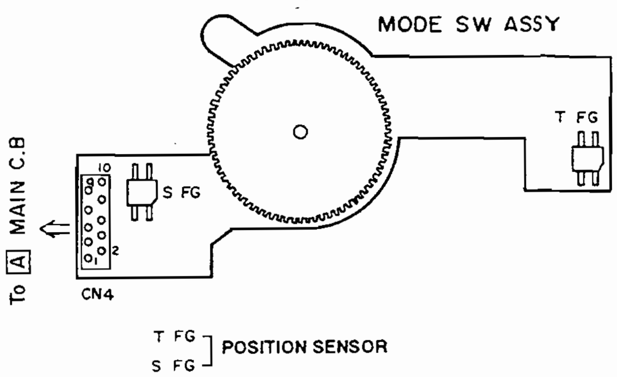

J302
MIC/LINE1
To VR301
(BLK)
(GRN)
(YEL)
(BRN)
(RED)
(ORG)
J301-1
J301-2
J301-3
J301-4
R
LINE 2 IN
L
LINE OUT
G A/D CONVERTER C.B
Q301
D301
C330
To F DIGITAL C.B
VR301
REC LEVEL
SHIELD PLATE
RLY301
RLY302
IC305
CON301
CON302
To M CONNECT 1 C.B PIN15
J303
DC7.4V
D302
IC304
IC306
IC303
(WHT)
(GRY)
To A MAIN C.B (D-OUT)
IC308
IC307
IC301
IC302
CON303
CON304
To H MIC AMP C.B CON101
PIN303
I TERMINAL 1 C.B
H MIC AMP C.B
IC102
IC101
To F DIGITAL C.B CON401
CON102
CON101
To G A/D CONVERTER C.B CON304
J TERMINAL 2 C.B
K TERMINAL 3 C.B
ALKALINE BATTERY DC7.5V

SCHEMATIC DIAGRAM – 6 (MECHA/FRONT)

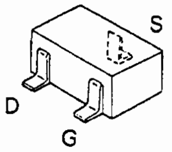

L MECHA C.B (FLEXIBLE PCB)
C FRONT C.B
D FRONT SWITCH C.B
E SWITCH C.B
CP2 GP2L20L (END SENSOR)
S1 RECOG SW L
S1-1 (NC)
S1-2 (1.5TP)
ĐS1 ĐEW SENSOR
PIN4 (FLEX)
END-K 20
END-C 19
END-E 18
END-A 17
ĐEW 16
NC 15
COM (G) 14
1.5TP 13
LCĐT 12
LCCK 11
CE 10
INH 9
KB 0 8
KB 1 7
KB 3 6
KSCN 0 5
KSCN 1 4
KSCN 2 3
5V 2
GNĐ 1
GNĐ
Đ 5V
TO A MAIN C.B CON4
PIN1 (FLEX)
CON1
KB3
CON14
PIN14
D1 1SS301
D2 1SS301
D3 1SS301
SW1 ĐISPLAY
SW2 AARSY/RESET
KSCN0
KSCN1
KSCN2
N.C
KB1
KB0
R1 100K
R2 100K
R3 100K
SW7 STOP/EJECT KSCN 0
SW5 PLAY/PAUSE KSCN 1
SW4 REW/B SKIP KSCN 2
SW8 REC
SW6 F.FWĐ/F SKIP
N.C
C1 680P
R5 47K
C2 0.1
R4 100K
IC1 LC7582A LCĐ ĐRIVER
VĐĐ
OSC
INH
VLCĐ
VSS
CE
LCCK
DATA
COM 2
COM 1
OPEN
ĐS.1 – ĐS.53
M2 SLEĐ MOTOR
SOL1 (BRAKE)
6V
PIN5 (FLEX)
SOL 2 16
SOL 1 15
THM 1 14
THM 2 13
TOP-K 12
TOP-A 11
TOP-E 10
TOP-C 9
KSCN 2 8
KSCN 1 7
KB 3 6
KB 2 5
SOFT 4
COM (G) 3
CAS IN 2
REC EN 1
TO A MAIN C.B CON5
CP1 GP2L20L (TOP SENSOR)
S2 RECOG SW R
S2-1 (CASSETTE IN)
S2-2 (REC ENABLE)
S2-3 (SOFT)
PIN2 (FLEX)
KSCN 2
KSCN 1
KB 3
KB 2
CON2
D4 1SS301
D5 1SS301
KB3
KB2
SW11 RENUMBER
SW10 IĐ MARK
SW9 IĐ ERASE
KSCN1
KSCN2
LCĐ1 LTP7L9011A (LCĐ ĐISPLAY)
START-IĐ
BATTERY
CAUTION
OVER
A-TIME
H
M
S
PLAY
REC

MECHANISM (MODE SW ASSY)

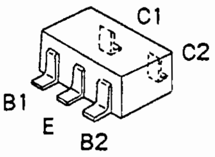

MODE SW ASSY
CN4
T FG
S FG
ENC 1
ENC 2
ENC 3
ENC 4
2
5
4
3
1
7
8
9
10
To A MAIN C.B


MODE SW ASSY
T FG
S FG
10
9
2
1
CN4
To A MAIN C.B
T FG
S FG
POSITION SENSOR

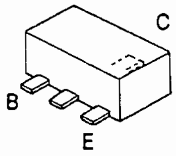
TRANSISTOR ILLUSTRATION



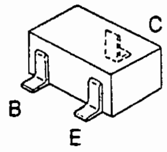
2SK880



FMA2



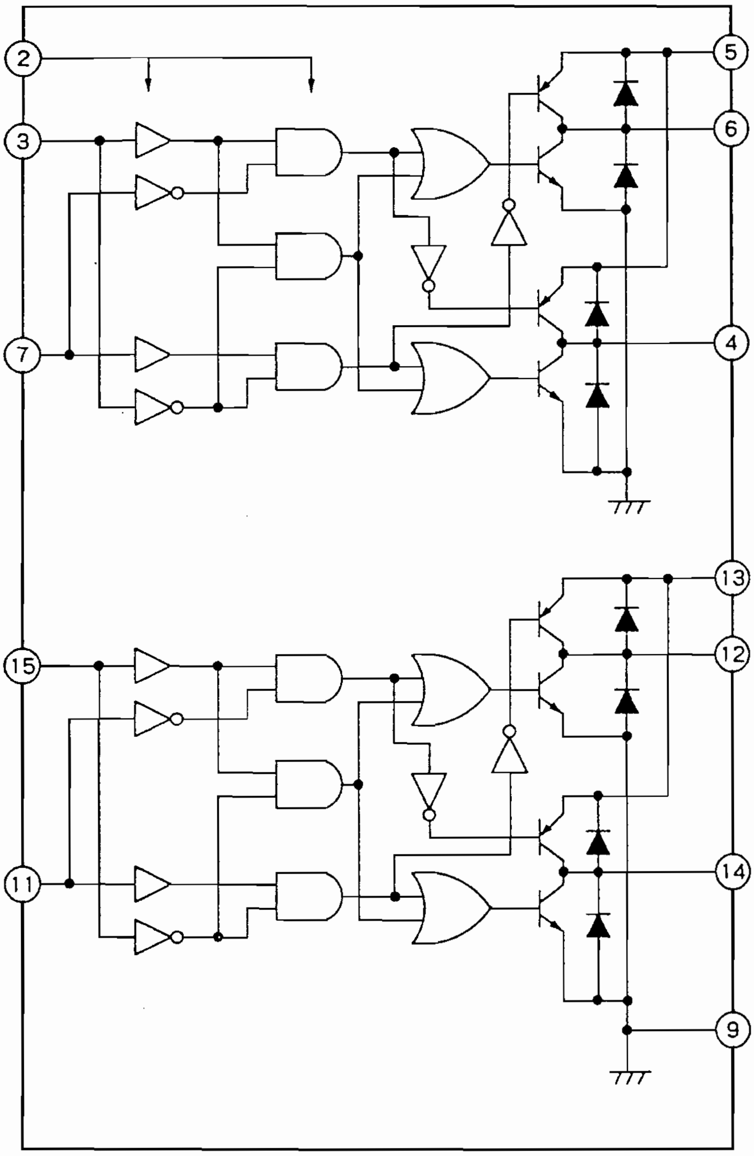
2SA1314



2SB1182
2SC2712
2SC4116
2SC4213
DTA114
DTC144
RN2301

IC BLOCK DIAGRAM – 2

IC,LB1631M


2
3
7
15
11
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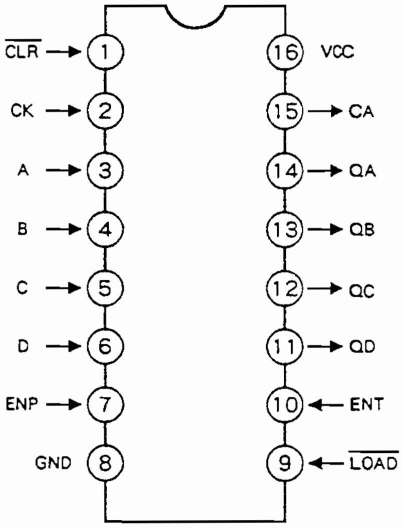
6
4
13
12
14
9

IC,TC74HC163A


CLR
CK
A
B
C
D
ENP
GND
1
2
3
4
5
6
7
8
16
15
14
13
12
11
10
9
VCC
CA
QA
QB
QC
QD
ENT
LOAD

TRUTH TABLE

INPUT					OUTPUT				
CLR	LOAD	ENT	ENP	CK	QA	QB	QC	QD	CA
L	X	X	X	↑	L	L	L	L	L
H	L	L	X	↑	A	B	C	D	L
H	L	H	X	↑					L ※
H	H	H	H	↑	COUNT				L ※
H	H	L	X	X	COUNT INHIBIT				L
H	H	H	L	X	COUNT INHIBIT				L ※

↑ : Shows that "L"changes to "H".

※ : Normally, CA is "L",but it goes "H"when QA,QB,QC,QD and ENT are "H".

X : "H"or "L".

IC DESCRIPTION

IC,HD49211BFS

Pin No.	Pin Name	I/O	Description
1	MUTE	I	MUTE control signal. ("H": Mutes monitor output)
2	CTRL	I	Microprocessor data transfer mode input control signal.
3	CCK	I	Microprocessor transfer data synchronizing clock input.
4	CDATA I	I	Microprocessor transfer data input.
5	CDATA O	O	Microprocessor transfer data output.
6	RXPLUL	O	Output to lock or unlock the PLL in the digital input mode. ("H" : Unlock, "L": Lock)
7	FCH	O	Channel clock output. (9.408MHz)
8	FCHI	I	Channel clock input.
9	$\overline{\text{RST}}$	I	Master reset signal. (connected to D+5V)
10	$\overline{\text{MON}}$	I	Internal signal monitor control signal. (connected to D+5V)
11	TEST	I	Connected to D+5V.
12	TEST	I	
13	TEST	I	
14	TEST	I	
15	TEST	I	
16	TEST	I	
17	TEST	I	
18	FLAG	O	Error flag output.
19	C2	O	C correction area output.
20	PBDT	I	Playback signal input.
21	PBCK	I	Playback signal synchronizing clock input.
22	RCDT	O	Recording signal output.
23	TEST	I	Connected to D+5V.
24	REC/$\overline{\text{PB}}$	O	Recording/playback control signal output. ("H": REC, "L":PB)
25	PL AREA	O	ATF Pilot signal recording area output.
26	SREF	O	Servo reference signal output.
27	SWH	I	Head switching signal input.
28	ATF END	I	ATF area detection signal input.
29	PARITY	O	Parity detection result output.
30	TEST	I	Connected to D+5V.
31	D7	I/O	RAM data inputs/outputs. (connected to IC2 on the Main C.B.)
32	D6	I/O	
33	D5	I/O	
34	D4	I/O	
35	D3	I/O	
36	D2	I/O	
37	D1	I/O	
38	D0	I/O	
39	VSS1	–	Ground of signal processor block.
40	A0	O	RAM address outputs. (connected to IC2 on the Main C.B.)
41	A1	O	
42	A2	O	
43	A3	O	
44	A4	O	
45	A5	O	
46	A6	O	
47	A7	O	
48	A8	O	
49	A9	O	
50	A10	O	

Pin N.	Pin Name	I/O	Description
51	A11	O	RAM address outputs. (connected to IC2 on the Main C.B.)
52	A12	O	
53	A13	O	
54	A14	O	
55	$\overline{\text{WE}}$	O	RAM write enable signal. (“L”: write enable)
56	$\overline{\text{OE}}$	O	RAM output enable signal. (“L”: output enable)
57	$\overline{\text{CE}}$	O	RAM chip select. (If MONITOR is L, SLOT signal is monitored.)
58	INHR	I	A/D R-ch operation stop control signal. (connected to ground)
59	INHL	I	A/D L-ch operation stop control signal. (connected to ground)
60	COMP3	I	A/D converter signal input. (connected to ground)
61	COMP2	I	A/D converter signal input. (connected to ground)
62	COMP1	I	A/D converter signal input. (connected to ground)
63	VDD2	–	Power supply of A/D and D/A output signals. (connected to D+5V)
64	OSC3B	O	37.632MHz oscillator output.
65	OSC3A	I	37.632MHz oscillator input.
66	CSW1	O	A/D, D/A current source control signal output. (unused)
67	CSW2	O	A/D、D/A current source control signal output. (unused)
68	CSW3	O	A/D、D/A current source control signal output. (unused)
69	OFS	O	D/A offset circuit control signal output. (unused)
70	VSS2	–	Ground of A/D、D/A output signals.
71	SHR	O	D/A R-ch sample/hold signal output. (If INHL or INHR is L, serial output is obtained.)
72	SHL	O	D/A L-ch sample/hold signal output. (If INHL or INHR is L, BCK output is obtained.)
73	MPX	O	Input/output L/R discrimination signal output. (“H”: R-ch, “L”: L-ch)
74	DCR	O	D/A R-ch discharge signal output. (unused)
75	DCL	O	D/A L-ch discharge signal output. (unused)
76	MODE	O	A/D, D/A switching signal output. (unused)
77	ADSR	O	PWM signal output for A/D R-ch offset servo. (unused)
78	ADSL	O	PWM signal output for A/D L-ch offset servo. (unused)
79	SIN	I	Serial signal input from A/D converter (IC101,102)
80	TX	O	Digital interface output.
81	128Fs	O	Clock output (128Fs output)
82	TEST	I	Vss (connected to ground)
83	RX	I	Digital interface input.
84	PDO	O	PLL phase comparator output.
85	EXCK	I	External clock input. (Fs48kHz·32kHz=24.576MHz, Fs=44.1kHz=22.5792MHz)
86	MCK	O	Master clock output. (256Fs output)
87	VSS1	–	Ground of signal processing block.
88	OSC2B	O	11.2896MHz/22.5792MHz oscillator output.
89	OSC2A	I	11.2896MHz/22.5792MHz oscillator input.
90	OSC1B	O	12.288MHz/24.576MHz oscillator output.
91	OSC1A	I	12.288MHz/24.576MHz oscillator input.
92	VDD1	–	Power supply of signal processing block. (connected to D+5V)
93	STRG	I	Frame sync signal input. (unused)
94	FSYNC	O	Frame sync signal output. (100/3Hz)
95	CKFID	I	TX clock accuracy control input. (connected to D+5V)
96	LVCK	I	Level meter data clock input.
97	LVDT	O	Level meter data output.
98	UDBS	O	Sync output of RX input U bit data. (unused)
99	UDCK	O	Sync clock output of RX input U bit data. (unused)
100	UDT	O	RX input bit data output. (unused)

IC,HD49212

Pin No.	Pin Name	I/O	Description
1	CCK	I	Microprocessor transfer data sync clock input.
2	CTRL	I	Microprocessor data transfer mode input control signal.
3	CFGOUT	O	Capstan FG output. Monitors the C FG signal input via pin 13.
4	TACH	O	TACH output. The trailing edge of this signal is used as a reference position during recording.
5	DFGOUT	O	Drum FG output. Monitors the D FG signal input via pin 8.
6	DGND	—	Ground of digital circuit.
7	ENVIN	I	RF signal envelope input.
8	DFGIN	I	Drum FG input.
9	PHASE	I	Connected to the resistors and capacitors of a monostable multivibrator which generates TACH pulses.
10	TEST	I	Test input pin. (unused)
11	DTPFB	O	Drum TACH amp output.
12	DTPIN	I	Drum TACH amp inverted input.
13	CFGIN	I	Capstan FG amp input.
14	SYNCI	I	Sync input during playback. ATF sync signal derived from the RF signal through a BPF.
15	TEST	I	Test input pin. (unused)
16	CSYNC	I	Connected a capacitor which holds the threshold voltage of the sync comparator.
17	PLTIN	I	Pilot amp 1 positive-phase input.
18	AGAIN	I	Inverted input to adjust the gain of A-head pilot amp 1.
19	BGAIN	I	Inverted input to adjust the gain of B-head pilot amp 1.
20	PLT1	O	Pilot amp 1 output.
21	PLT2	I	Pilot amp 2 output.
22	AGND	—	Ground of analog circuit.
23	PLTVTH	I	Pilot comparator threshold voltage input.
24	VREF	O	VDD/2 output. (2.5V)
25	CPLT	I	Connected a capacitor which holds the threshold voltage of the pilot detector.
26	ENV	O	Pilot detector output.
27	CSH1	I/O	Connected a capacitor for sample/hold 1.
28	CSH3	I/O	Connected a capacitor for sample/hold 3.
29	SH3OUT	O	Smple/hold 3 output.
30	VOFT	I	ATF offset voltage input. (unused)
31	CSH2A	I/O	Connected a capacitor for sample/hold 2A.
32	CSH2B	I/O	Connected a capacitor for sample/hold 2B.
33	ATFE1	I	ATF error amp inverted input.
34	ATFE2	O	ATF error amp output.
35	COS1	I/O	Capstan offset servo integrator inverted input.
36	COS2	O	Capstan offset servo integrator output.
37	ROOUT	O	Reel offset servo control voltage buffer output.
38	COOUT	O	Capstan offset servo control voltage buffer ouput.
39	RROUT	O	Reel rising ramp voltage output.
40	CIOUT	O	Capstan I system control voltage buffer output.
41	RPOUT	O	Reel P system control voltage buffer output.
42	CPOUT	O	Capstan P system control voltage buffer output.
43	CIIN	I	Capstan I system PWM input passing through an LPF.
44	CIPWM	O	Capstan I system PWM output.
45	AVDD	—	Power supply of analog circuit. (D+5V)
46	CPIN	I	Capstan P system PWM input passing through an LPF.
47	CPPWM	O	Capstan P system PWM output.
48	DIOUT	O	Drum I system control voltage buffer output.

Pin No.	Pin Name	I/O	Description
49	DIIN	I	Durm I system PWM input passing through an LPF.
50	DIPWM	O	Drum I system PWM output.
51	DOOUT	O	Drum offset servo control voltage buffer output.
52	DOIN	I	Drum offset servo PWM input passing through an LPF.
53	DOPWM	O	Drum offset servo PWM output.
54	DPOUT	O	Drum P system control voltage buffer output.
55	DPIN	I	Drum P system PWM input passing through an LPF.
56	DPPWM	O	Drum P system PWM output.
57	VBRK	I	Drum brake voltage input. (fixed at 4.5V)
58	BRAKE	O	Drum brake control output. (“H”: brake, “L”: normal)
59	DVDD	–	Power supply of digital circuit. (D+5V)
60	TEST	I	Test input pin. (connected to D+5V)
61	$\overline{\text{NOR}}$	I	Normal mode input. (connected to D+5V)
62	$\overline{\text{RST}}$	I	Reset input. (connected to D+5V)
63	TFG	I	T reel FG input.
64	SFG	I	S reel FG input.
65	ENVOUT	O	Envelope comparator output.
66	FCH	I	Channel clock input.
67	PARITY	I	Parity signal input.
68	ATFEND	O	ATF END output.
69	SWH	O	Head switching ouput.
70	SREF	I	Servo reference input.
71	PBCK	I	Playback signal sync clock input.
72	ATFMTR	O	ATF monitor during play and HUNT monitor during search.
73	ATFDET	O	ATF DET monitor during play and HOLD monitor during search.
74	PLTOUT	O	PILOT monitor during play and DION monitor during search.
75	SYOUT	O	SYNC monitor during play and CK (PACK divided by 2) monitor during search.
76	PLLLOCK	O	PLL lock monitor. (“H”: lock)
77	DLOCK	O	Drum lock output. (“H”: lock)
78	CRLOCK	O	Capstan/reel lock output. (“H”: lock)
79	RF	O	RF signal presence/absence status output. (“H”: present)
80	CDATA	I	Microprocessor transfer data input.

IC, UPD75P108

Pin No.	Pin Name	I/O	Description		LOAD	EJECT	BRAKE	OFF
1	KB1	I	Key matrix inputs from the FRONT and SWITCH C.Bs.					
2	KB0	I						
3	$\overline{\text{INH}}$	O	LCD dispaly inhibit. (“H”: lights, “L”: goes off)					
4	CE	O	LCD driver interface. Chip select (CE) output.					
5	LCCK	O	LCD driver interface. Clock (CLK) output.					
6	LCDT	O	LCD driver interface. Data output.					
7	$\overline{\text{RST}}$	I	Microprocessor reset pin. (“H”: normal,“L”reset)					
8	X2	—	Connected a 44.19MHz crystal oscillator.					
9	X1	—	Connected a 44.19MHz crystal oscillator.					
10	PWON	I	Power switch input. (“H”: ON, “L”: OFF)					
11	$\overline{\text{PLAY}}$	O	DA data enable, etc. (“L”: PLAY, PLAY PAUSE)					
12	FS32	O	Switches Fs to 256Hz when it is 32kHz. (“H”: Fs32kHz)					
13	POFF	O	Auto power off output.					
14	THME	O	Sled motor control pins.	THME	0	1	1	0
15	THML	O		THML	1	0	1	0
16	CMRS	O	Capstan reverse control signal. (“H”: reverse, “L”: forward)					
17	DON	O	Drum motor on signal. (“H”: on, “L”: off)					
18	RF	I	Presence/absence of RF signal. (“H”: present, “L”: absent)					
19	CRLK	I	Capstan/reel lock signal. (“H”: lock, “L”: unlock)					
20	DLK	I	Drum lock signal. (“H”: lock, “L”: unlock)					
21	PLLK	I	PLL lock signal. (“H”: lock, “L”: unlock)					
22	SERIN	O	Search/normal mode. (“H”: search, “L”: normal)					
23	RPSEL	O	PB/REC. (“H”: PB, “L”: REC)					
24	MUTE	O	DSP LSI (Main C.B IC1) motor output muting. (“H”: mute)					
25	LVCK	O	Level data transfer clock.					
26	VSS	—	Connected to ground.					
27	LVDT	I	Level data input.					
28	SWH	I	Drum switching pulse input.					
29	SFG	I	S reel FG input. 1 rotation: 16 pulses.					
30	TFG	I	T reel FG input.					
31	DEW	I	Dew sensor input. (“H”: dew, “L”: normal)					
32	TEST	I	TEST mode setting. (see TEST MODE)					
33	BATT	I	Battery voltage detection.					
34	REM	I	Remote control voltage detection.					
35	$\overline{\text{END}}$	I	Supply end sensor input. (“H”: normal, “L”: end)					
36	$\overline{\text{TOP}}$	I	Take-up end sensor input. (“H”: normal, “L”: top)					
37	$\overline{\text{MUTEL}}$	O	Line mute. (“H”: normal, “L”: mute)					
38	FS32	O	D/A mute. (“H”: normal, “L”: mute)					
39	EMPH	O	Emphasis ON/OFF. (“H”: ON, “L”: OFF)					
40	CTRL	O	DSP/SERVO LSI(Main C.B. IC1/IC8)data transfer mode input control signal.					
41	CDATAO	I	DSP LSI(Main C.B. IC1) interface. (Data IN)					
42	CDATAI	O	DSP/SERVO LSI(Main C.B. IC1/IC8) interface. (Data OUT)					
43	CCK	O	DSP/SERVO LSI(Main C.B. IC1/IC8) interface. (Clock OUT)					
44	FSYNC	I	DSP frame sync signal input. (100/3Hz)					
45	RXPLUL	I	Digital in PLL unlock signal input. (“H”: unlock, “L”: lock)					
46	D/AIN	I	DIGITAL/ADAPTOR switch input. (“H”: digital input, “L”: adapter input)					
47	$\overline{\text{K-HOLD}}$	I	Key hold switch input. (“H”: normal, “L”: key hold)					
48	C-LOCK	I	Cassette compartment lock detection switch. (“H”: locked position, “L”: normal)					
49	$\overline{\text{CASIN}}$	I	Cassette-in detection. (“H”: no cassette, “L”: cassette)					
50	$\overline{\text{RECEN}}$	I	REC enable. (“H”: REC disable, “L”: REC enable)					

Pin No.	Pin Name	I/O	Description
51	$\overline{\text{SOFT}}$	I	Recorded tape detection. (“H”: recorded tape, “L”: normal)
52	1.5TP	I	1.5-times tape width detection. (“H”: 1.5-times pitch, “L”: normal)
53	ENC4	I	Rotary encoder inputs. (to detect the mechanism mode)
54	ENC3	I	
55	ENC2	I	
56	ENC1	I	
57	NC	—	Unused. (D+5V)
58	VDD	—	Power supply. (D+5V)
59	SOL	O	Solenoed ON/OFF. (“H”: ON, “L”: OFF)
60	KSCN2	O	Key scan outputs to the FRONT and SWITCH C.Bs.
61	KSCN1	O	
62	KSCN0	O	
63	KB3	I	Key matrix inputs from FRONT and SWITCH C.Bs.
64	KB2	I	

IC,HA12062AMP

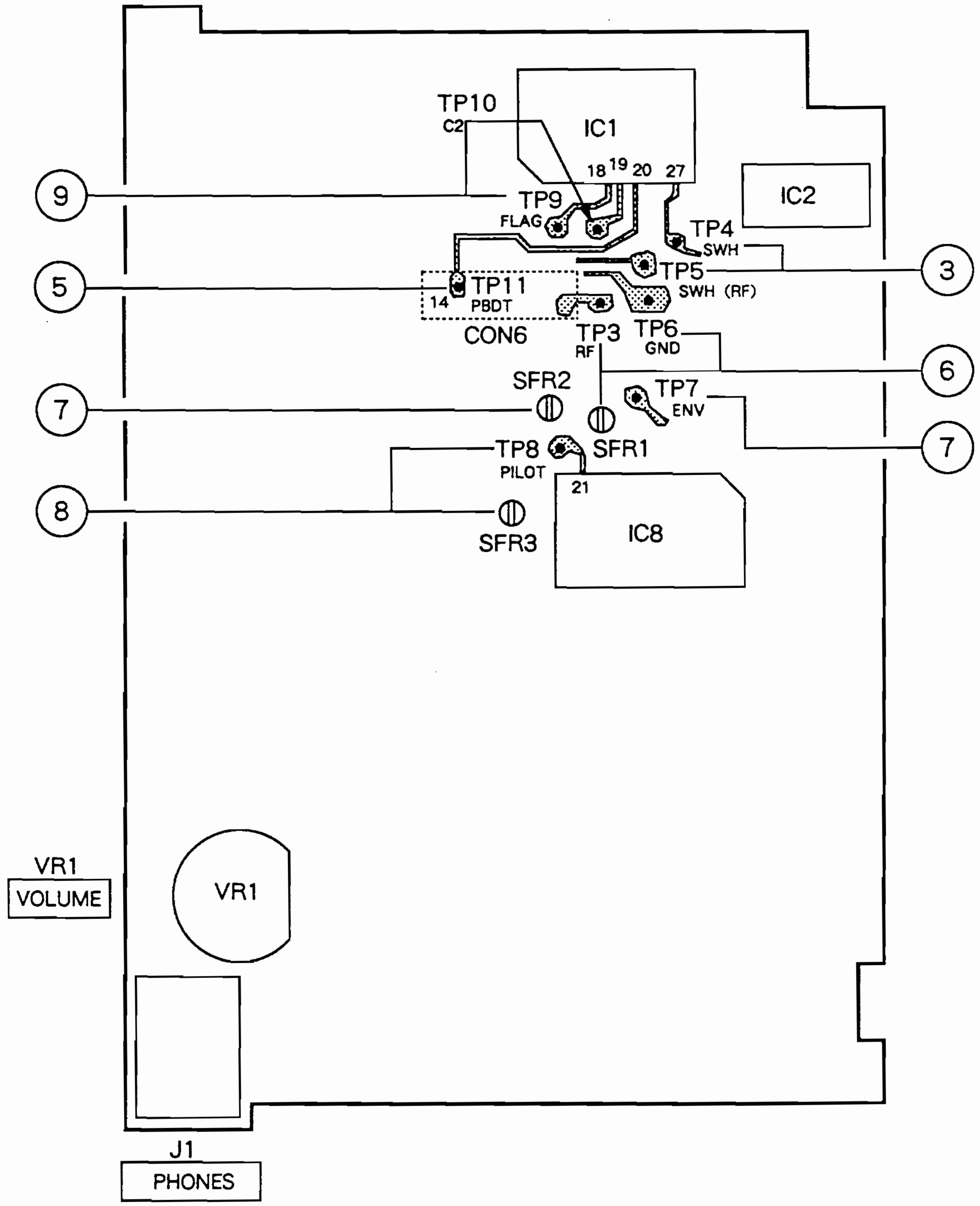
Pin No.	Pin Name	I/O	Description
1	LMI	I	Limiter amp input.
2	NC	-	Unused.
3	AVCC	-	Power supply of analog system. (D+5V)
4	SERIN	-	Search/normal mode. (H=search, L=Normal)
5	TEST2	-	Test pin. (connected to ground through a capacitor)
6	BYP1	-	Connected to a bypass capacitor of the bias source.
7	BYP2	-	Connected to a bypass capacitor of the limiter amp.
8	AGND	-	Ground of analog system.
9	CC1	-	Connected to a bypass capacitor of the DC amp.
10	CC2	-	Connected to the resistors and capacitors of a loop filter.
11	BYP3	-	Connected to a bypass capacitor of the bias source.
12	BYP4	-	Connected to a bypass capacitor of the VCO.
13	VCO1	0	Connected to a tank coil of the VCO.
14	VCO2	0	Connected to a tank coil of the VCO.
15	VC1	I	Connected to a tank coil (Secondary circuit) of the VCO.
16	BYP5	-	Connected to a bypass capacitor of the bias source.
17	AGC	-	Connected to a capacitor of AGC detector.
18	BYP6	-	Connected to a bypass capacitor of the AGC circuit.
19	TEST3	-	Test pin. (connected to ground)
20	NC	-	Unused.
21	R/PSEL	I	REC/PB switching signal input. (H=PB, L=REC)
22	CC3	-	Connected to a capacitor of the ASPC filter.
23	CC4	-	Connected to a capacitor of the ASPC filter.
24	PBCK	0	Clock output.
25	PDATA	0	Playback data output.
26	DGND	-	Ground of digital system.
27	BYP7	-	Connected to bypass of the bias source.
28	DVCC	-	Power supply of digital system. (D+5V)

IC,HA12133MP

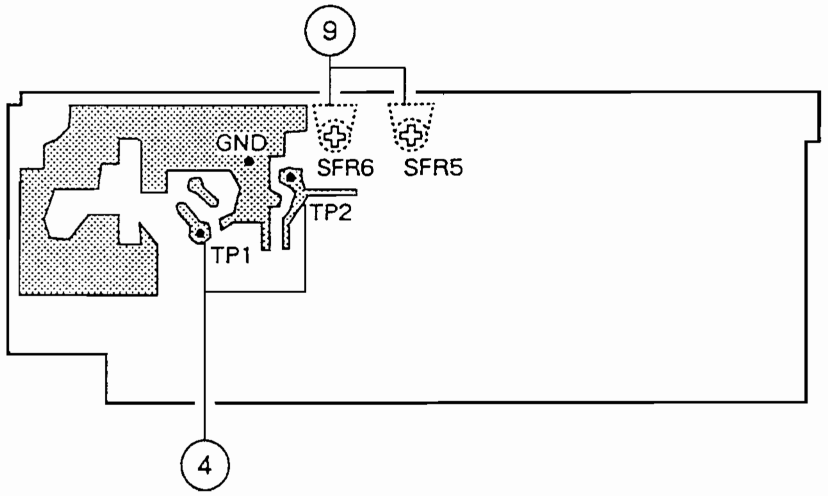
Pin No.	Pin Name	I/O	Description
1	RECLVB	-	Connected to a resistor which sets the B-ch PCM area recording level.
2	PLTLVB	-	Connected to a resistor which sets the B-ch ATF pilot area recording level.
3	ATFOUT	O	ATF servo preamp output.
4	RFOUT	O	Preamp output.
5	EQ1INP	I	EQ1 amp positive input.
6	EQ1INN	I	EQ1 amp negative input.
7	EQ1OUT	O	EQ1 amp output.
8	BIASPC1	-	Connected to a bypass capacitor of the bias circuit.
9	AGND	-	Ground of analog system.
10	EQ2INP	I	EQ2 amp positive input.
11	EQ2INN	I	EQ2 amp negative input.
12	EQ2GAN	-	Connected to the resistors which set the gain of the EQ2 amp.
13	EQ2OUT	O	EQ2 amp output.
14	DGND	-	Ground of digital system.
15	RDATA	I	Recording data input.
16	PLAREA	I	Signal to switch the ATF pilot area recording level. "High": ATF pilot area "Low" : other
17	REC/$\overline{\text{PB}}$	I	Recording/playback switching signal input. "High": recording "Low" : playback
18	SWH	I	Head switching signal input. "High": B-ch "Low" : A-ch
19	TEST	-	Test pin. (connected to ground)
20	DVCC	-	Power supply of digital sytem. (RF+5V)
21	PLTLVA	-	Connected to a resistor which sets the A-ch ATF pilot area recording level.
22	RECLVA	-	Connected to a resistor which sets the A-ch PCM area recording level.
23	VCAOTA	O	A-ch REC VCA output.
24	RECINA	I	A-ch REC amp input.
25	PVCCPC	O	Reference bias output.
26	RECOTA	O	A-ch REC amp input.
27	SNDPCA	-	Connected to a bypass capacitor of the A-ch 2nd amp.
28	SNDINA	I	A-ch 2nd amp input.
29	FSTOTA	O	A-ch 1st amp output.
30	RGNDA	-	Ground.

Pin No.	Pin Name	I/O	Description
31	PBSWA	-	Connected to the collector of the A-ch 1st amp switching transistor.
32	FSTINA	I	A-ch 1st amp input.
33	BIASPC2	-	Connected to a bypass capacitor of the bias circuit.
34	PBCNT	-	Connected to the base of the A-ch 1st amp switching transistor.
35	FSTINB	I	B-ch 1st amp input.
36	PBSWB	-	Connected to the collector of the B-ch 1st amp switching transistor.
37	RGNDB	-	Ground.
38	FSTOTB	O	B-ch 1st amp output.
39	SNDINB	I	B-ch 2nd amp input.
40	SNDPCB	-	Connected to a bypass capacitor of the B-ch 2nd amp.
41	RECOTB	O	B-ch REC amp output.
42	AVCC	-	Power supply of analog system. (RF+5V)
43	RECINB	I	A-ch REC amp input.
44	VCAOTB	O	B-ch REC VCA output.

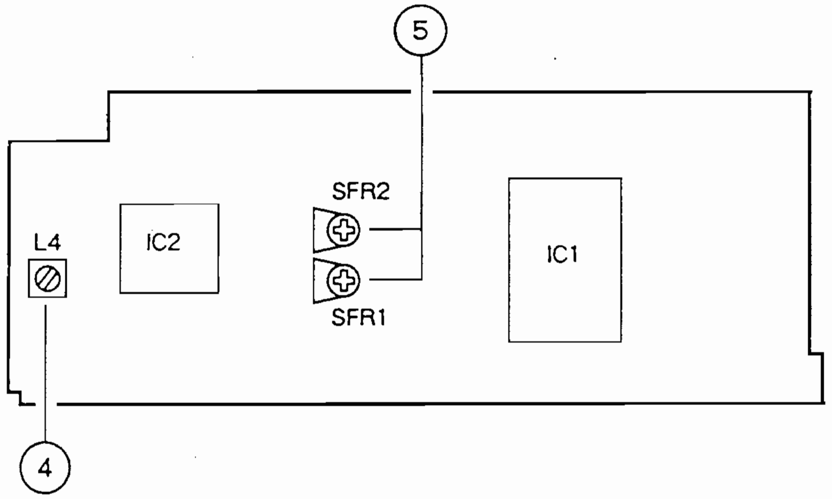
A MAIN C.B



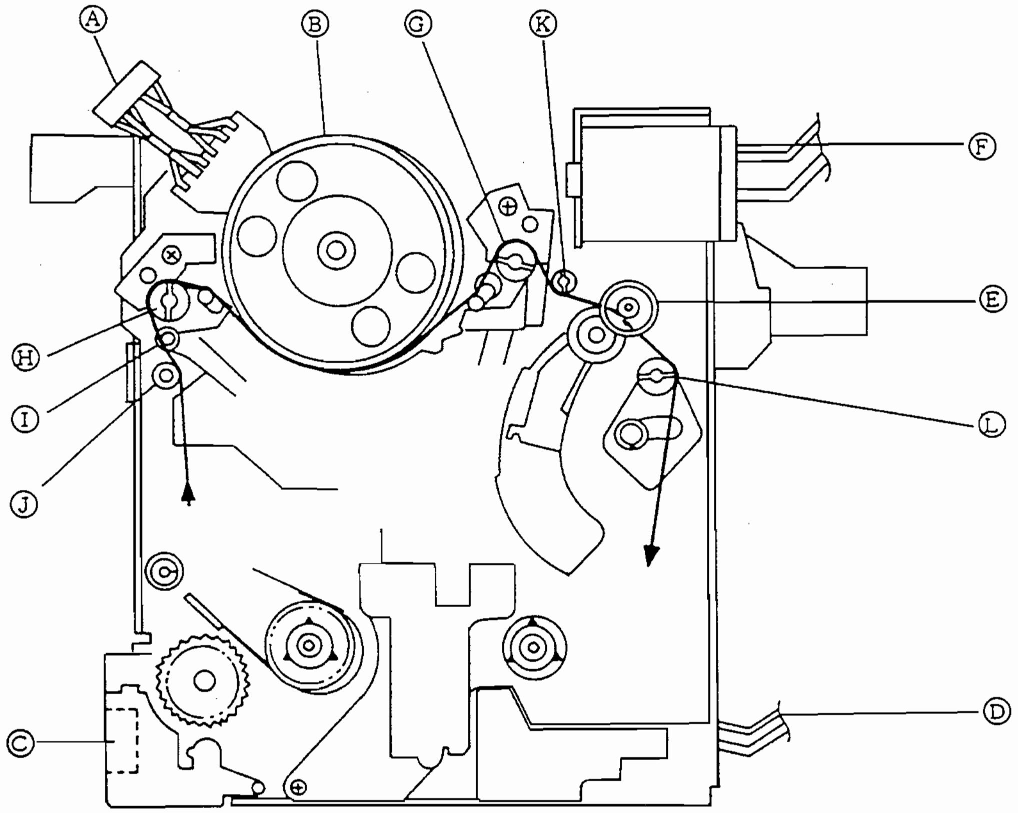
B PRE AMP C.B (BOTTOM VIEW)


9
GND
SFR6
SFR5
TP2
TP1
4

B PRE AMP C.B (TOP VIEW)


5
SFR2
L4
IC2
IC1
SFR1
4

Tape Path Adjustment Locations



- Ⓐ Drum Input Terminal
- Ⓑ Drum
- Ⓒ Mode Switch
- Ⓓ Plunger
- Ⓔ Capstan Motor
- Ⓕ Sled Motor
- Ⓖ Take-up Shuttle
- Ⓗ Supply Shuttle
- Ⓘ Tension Regulator
- Ⓙ Guide Roller S
- Ⓚ Guide Roller T
- Ⓛ Guide Roller Pinch

Fig-1

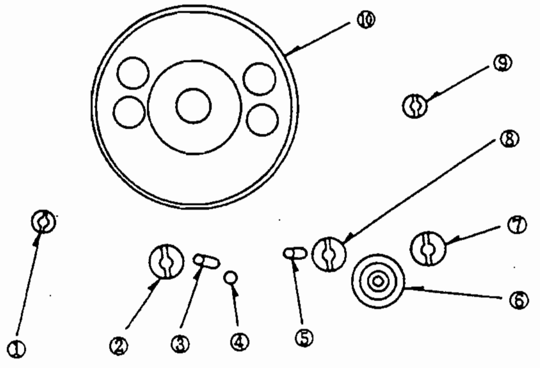
MECHANISM SECTION

Mechanism Adjustment

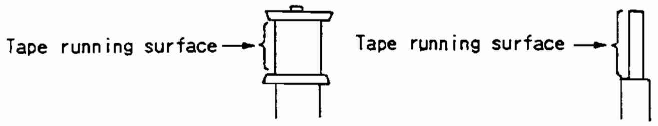
1. Cleaning (See Figure-2)

1) Use chamois leather to clean dust and dirt adhering to the shafts and "Guide Rollers" which come into contact with the tape.

※ Set the mechanism to the unsledded state and clean each section.


⑩
⑨
⑧
⑦
⑥
①
②
③
④
⑤

- ① Guide Roller S
- ② Supply Roller
- ③ Shuttle Shaft S
- ④ Tension Regulator
- ⑤ Shuttle Shaft T
- ⑥ Pinch Roller
- ⑦ Guide Roller Pinch
- ⑧ Take-up Roller Pinch
- ⑨ Guide Roller
- ⑩ Drum


Tape running surface
Tape running surface

Cleaning points

Fig-2

2. Back-tension Adjustment (See Figure-3)

1) Supply power from the AC adapter.

2) Load a tape and set the HD-S1000 to the PLAY mode.

3) Loosen the screw and adjust so that the "Tension Regulator" is between the "Supply Roller" and "Guide Roller S"

4) Load the torque tape (TW-7111) and set the HD-S1000 to the PLAY mode.

5) Check that the back-tension is 3~5g.

6) After adjustment is complete, tighten the screw and coat it with screw locking compound from the back of chassis.

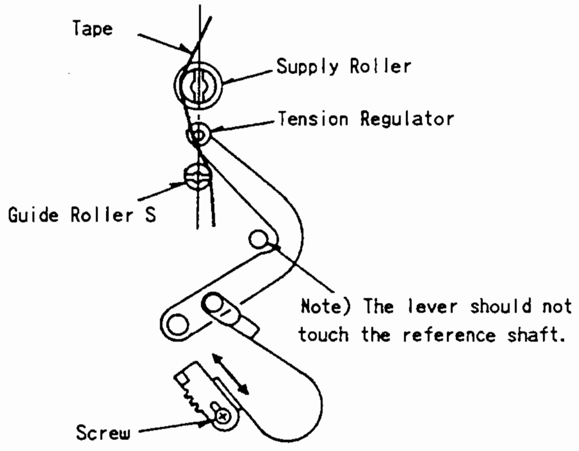

Tape
Supply Roller
Tension Regulator
Guide Roller S
Note) The lever should not touch the reference shaft.
Screw

Fig-3

3. Tape Path Adjustment

1) Connection of oscilloscope

CH-1: TP RF (on Main C.B)

CH-2: TP SW H (on Main C.B)

※ Trigger with CH-2.

2) Setting of test mode : Test mode 2 (Test tape mode).
See TEST MODE.

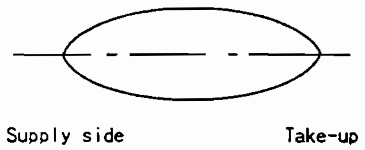
3) Play the alignment tape (TY-7251).

4) Observing the oscilloscope, adjust the waveform so that it becomes square. (See Figure-4)

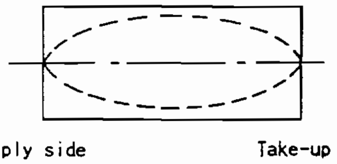
4-1. Turn "Take-up Shuttle" Ⓖ to adjust the waveform on the take-up side.

4-2. Turn "Supply Shuttle" Ⓗ to adjust the waveform on the supply side.

4-3. Finally, adjust so that the waveform becomes as shown in Figure-4.


Supply side
Take-up side

Waveform before tape path adjustment : Round waveform


Supply side
Take-up side

Waveform after tape path adjustment : Square waveform

Fig-4

Cautions on adjustment

① If the wavefrom on the oscilloscope is as shown in Figures-5 and 6, adjust the tape path as follows. (See Figures-5 and 6)

If the waveform becomes as shown in Figure-5, turn shuttles Ⓖ and Ⓗ counterclockwise (See Figure-1).

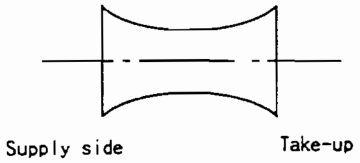

Supply side
Take-up side

Fig-5

If the waveform becomes as shown in Figure-6, turn shuttels Ⓖ and Ⓗ clockwise (See Figure-1).

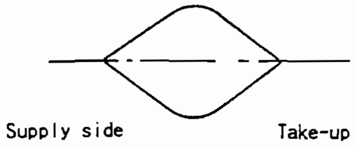

Supply side
Take-up side

Fig-6

② Check that the following specifications are satisfied. (See Figures-7 and 8)

Linearity of drum :
Value a should be 1/10 or less value A as shown in the waveform in Figure-7.

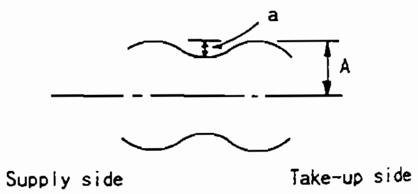

a
A
Supply side
Take-up side

Fig-7

Tape transport characteristic :
If the amplitude of the waveform on the supply side is assumed as B, the amplitude on the take-up side should be 0.9B as shown by the waveform in Figure-8.

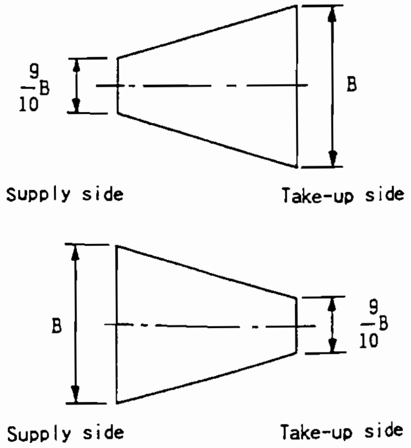
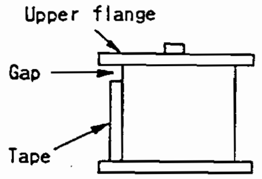

9/10 B
B
Supply side
Take-up side
B
9/10 B
Supply side
Take-up side

Fig-8

4) Supply side free waveform adjustment (See Figure-9)
Turn shuttle Ⓖ counterclockwise (see Figure-1) to separate the tape from the upper flange and adjust Ⓖ so that the number of peaks in the waveform on the oscilloscope is 1.5~5.


Upper flange
Gap
Tape

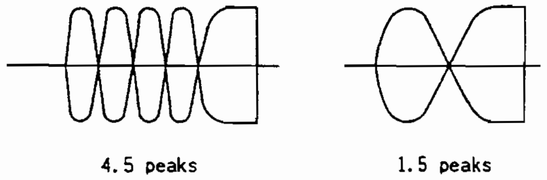

4.5 peaks
1.5 peaks

Fig-9

5) Perform step 3) again to adjust the tape path.

6) Take-up side free waveform adjustment.
Turn shuttle Ⓗ counterclockwise (see Figure-1), step 4) and adjust Ⓗ in the same way so that the number of peaks in the waveform on the oscilloscope is 3 or more.

7) Perform step 3) again to adjust the tape path.

8) Tape transport adjustment

① Adjust rollers Ⓙ and Ⓚ (see Figure-1) so that the tape touches the lower flanges of the rollers. (See Figure-10)

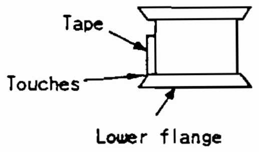

Tape
Touches
Lower flange

Fig-10

② Adjust "Guide Roller Pinch" Ⓛ (see Figure-1) so that the tape is positioned between the upper and lower flanges and does not touch them. (see Figure-11)

Tape should be positioned between the upper and lower flanges.

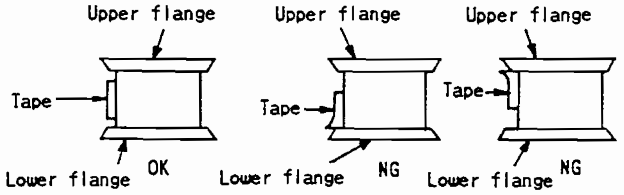

Upper flange
Upper flange
Upper flange
Tape
Tape
Tape
Lower flange
OK
Lower flange
NG
Lower flange
NG

Fig-11

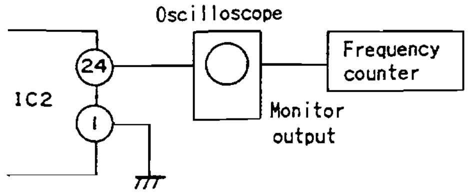
9) Enter the play mode from the fast forward, rewind and stop modes and check that the RF waveform rises from the take-up side.
● If this rise is defective, readjust from step 1).

10) Fast forward and rewind a C-120 tape and check that the tape does not come off rollers Ⓙ, Ⓚ and Ⓛ (see Figure-1). Also check that the tape runs, touching the upper flanges of rollers Ⓖ and Ⓗ as shown in Figure-11.

11) Play the tape and check that it does not come off rollers Ⓖ, Ⓗ, Ⓙ, Ⓚ and Ⓛ (see Figure-1).

4. VCO Adjustment

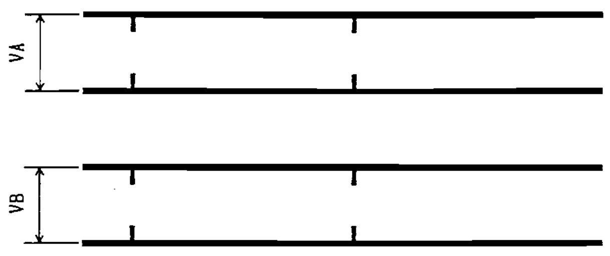
1) Connect a frequency counter to TP1 (IC2 pin ㉔ on B PRE AMP C.B.) via an oscilloscope.
2) Connect TP2 (IC2 pin ①) to ground and adjust L4 so that the frequency counter reads 8.35±0.01MHz.
3) After adjustment is complete, disconnect TP2 from ground.



5. Recording Current Adjustment

Conditions : · Test tape: TY-7551
· Test points: TP11(PB DT)
TP4(SWH)
· Adjustment points: SFR1 (Ach), SFR2 (Bch)
(B PREAMP C.B)
· Settings of oscilloscope: V axis (0.1v/div.)
T axis (2~5msec)
External trigger
· Error rate counter

1) Connect an error rate counter (NRZ1) to TP11(PBDT).
2) Connect an error rate counter (33Hz) to TP4(SWH).
3) Play the test tape and check that the error rate is 35×10^{-4} or less. If the error rate is incorrect, perform 9. Error Rate Adjustment.
4) Replace the drum connector with the jig. (See Fig.12) Connect two probes and adjust SFR 1 and 2 in the record mode so that voltages VA and VB on the oscilloscope are 120mV. After adjustment, remove the jig, attach the drum connector and use a recording/playback tape to record for 30 seconds.



5) Play back the recorded section. If the error rate is 35×10^{-4} or less, the current selected in step 4) is optimum. If either channel is incorrect, continue the following adjustments, and if both channels are incorrect, skip to step (11).

6) Replace the drum connector with the jig and adjust SFR 1 and 2 so that VA and VB are set to the following voltages.

If Ach is not within the specification, adjust SFR 1.

VA VB
120(mV)——↓——120(mV)
I 140(mV)————120(mV)
II 180(mV)————120(mV)

If Bch is not within the specification, adjust SFR 2.

VA VB
120(mV)——↓——120(mV)
I 120(mV)————140(mV)
II 120(mV)————180(mV)

7) Record signals in state I for 30 seconds and record in state II for 30 seconds.
8) Read the error rate by the procedure in step (5) and select the smaller value.
9) If either channel is still not within the specification, perform the following.

If Ach is not within the specification/
If Bch is not within the specification

VA VB VA VB
I 140(mV)————100(mV) I 100(mV)————140(mV)
II 180(mV)————100(mV) II 100(mV)————180(mV)

10) Perform steps (7) and (8).
11) If both channels are out of the specifications, perform the following.

VA VB
I 140(mV)————140(mV)
II 180(mV)————180(mV)

12) Perform steps (7) and (8).
13) If either channel is not within the specification in step (12), set the channel to 200(mV) and perform steps (7) and (8).

Caution: If an error rate counter is not available, do not perform this adjustment.

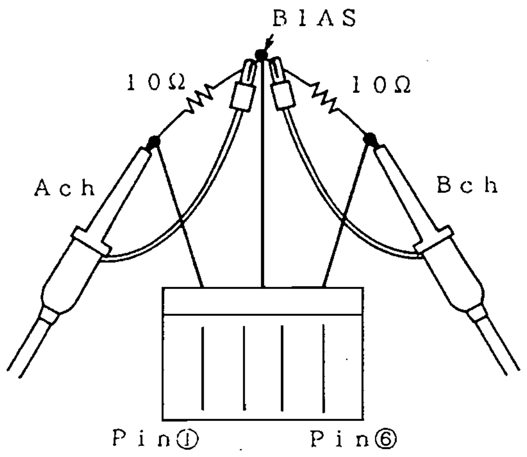
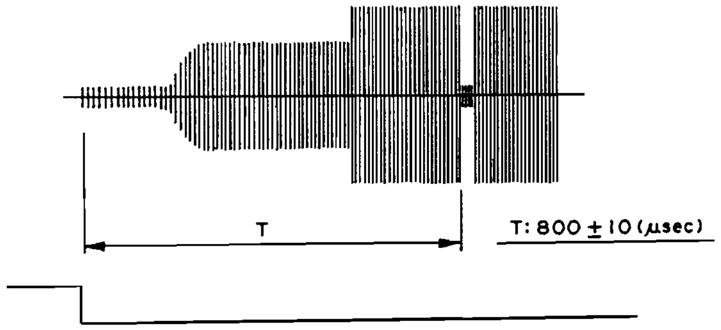


Fig-12

6. TACH Adjustment

Conditions : · Alignment tape: TY-7251
· Test points: TP3(RF), TP4(SWH), TP5(SWH,RF), TP6(GND)
· Adjustment point: SFR1 (A MAIN C.B.)
· Settings of oscilloscope: V axis (0.1v/div.)
T axis (2~5msec)
External trigger
· Setting of test mode: Test mode 2
(Test tape mode)
See TEST MODE.

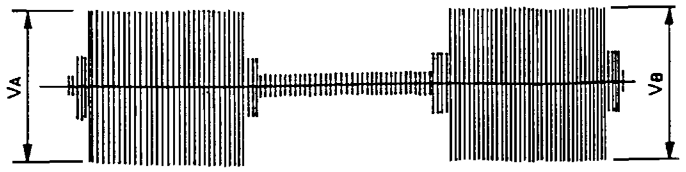
1) Connect an oscilloscope to test points TP3 (RF) and TP4 (SWH).
2) Connect TP5 (SWH, RF) to TP6 (GND).
3) Play the alignment tape and adjustment SFR1 so that the period is 800±10μs at TP3.
4) After adjustment is completed, turn the power switch off. (The test mode is released).
5) Disconnect TP5 from TP6.



7. ENV Adjustment

Conditions : · Alignment tape: TY-7551
· Test points: TP4(SWH), TP7(ENV)
· Adjustment point: SFR2
· Settings of oscilloscope: V axis (0.1V/div.)
T axis (2~5msec)
External trigger

1) Connect an oscilloscope to TP7 (ENV) and TP4 (SWH).
2) Play the first track on the alignment tape and adjust SFR2 so that the voltage at TP7 is 600mV.

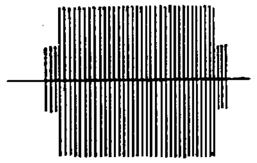


If values VA and VB are different, adjust to the higher voltage.

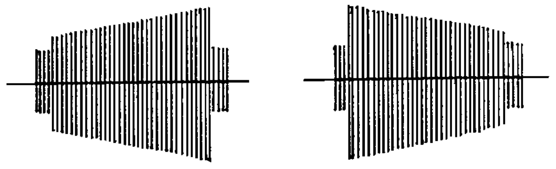
(Caution)

If the RF waveform is as shown in the figure below, perform tape path adjustment again.

(OK)



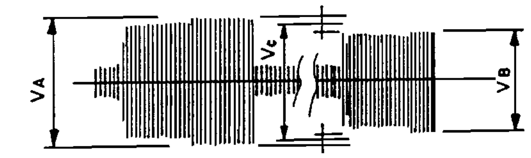
(NG) (NG)



8. ATF Adjustment

Conditions : · Alignment tape: TY-7111
· Test points: TP4(SWH), TP8(PILOT)
· Adjustment point: SFR3
· Settings of oscilloscope: V axis (50mV/div.)
T axis (2~5msec)
External trigger

1) Connect an oscilloscope to TP8 (PILOT) and TP4 (SWH).
2) Play the alignment tape and adjust SFR3 so that the voltage at TP8 is 200mV.



If values VA and VB are differenct, adjust to the center value (VC) between them.

VC : 200mV

9. Error Rate Adjustment

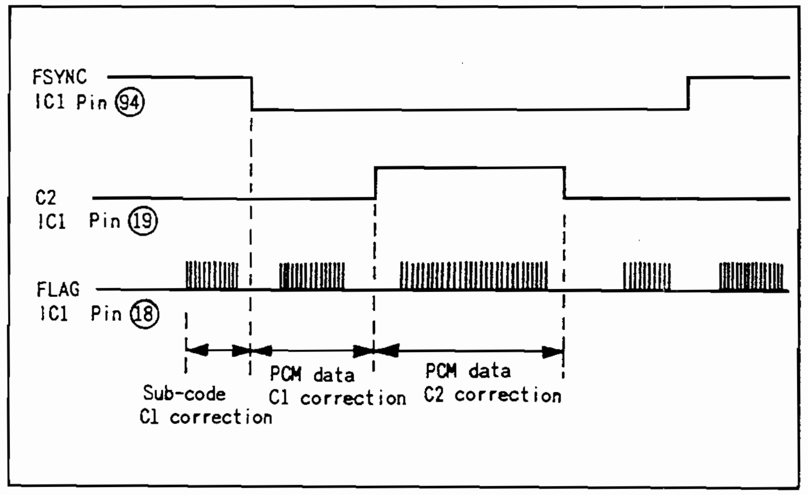
Conditions : · Alignment tape: TY-7551

· Test points: TP9(IC1 pin ⑱ FLAG)
TP10(IC1 pin ⑲ C2)

· Adjustment points: SFR5, SFR6

1) Connect CH-1 of the oscilloscope to TP9.
2) Connect CH-2 of the oscilloscope to TP10.
3) Trigger the oscilloscope with CH-2.
4) Adjust SFR5 to decrease the flags at TP9 (IC1 pin ⑱ FLAG).
5) Adjust SFR6 to further decrease the flags in the C1 correction section.
6) Perform steps 4) and 5) a few times to minimize the flags.

Error rate adjustment waveform



TEST MODE

The HD-S1000 has test modes for adjustment and operation check.

1) Starting Test Mode

The HD-S1000 enters the test mode by the following procedure.

(1) Turn the power on.
(2) Set to the stop mode.
(3) Set the KEY HOLD switch to the HOLD position.
(4) Short the TEST terminal (IC12 pin ㉜) of the microprocessor on the Main C.B. to the 5V pattern (round) using tweezers, etc.

When steps (1)~(4) above are held for one second or more, the HD-S1000 enters the test mode and all segments of the LCD light.

＊The TEST pin is not involved after test mode has been entered.

2) Types of Test Mode

There are five test modes which are switched as follows.

Test Mode	Display	Mode Switching Method
0	All LCD segments light	↓ Press the PLAY, STOP or DISPLAY key.
1	Test key switch check	↓
2	Alignment tape mode (path adjustment)	Set the KEY HOLD switch to OFF. ↓
3	Error rate display	Press the DISPLAY key. ↓
4	Microprocessor mode display	Press the DISPLAY key.

＊Test modes 2~4 are switched when the DISPLAY key is pressed.
When the KEY HOLD switch is set to OFF in test mode 0, test mode 2 is entered.
＊Test mode is released when the power is turned off.
＊The P-NO. and test mode No. (C1~C4) is displayed in test modes 1~4.

3) Description of Test Modes

(1) Test mode 0

This mode is used to check the lighting of the LCD. All segments of the LCD light as shown in Figure-1.

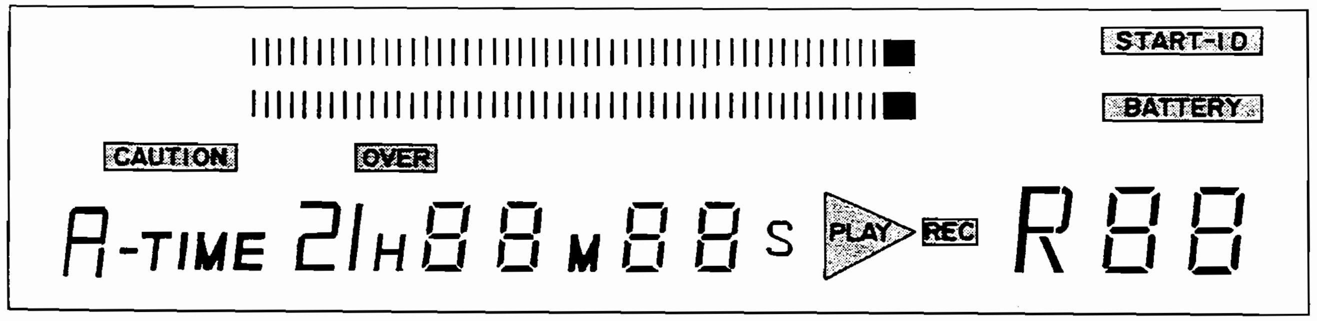


Fig-1 State when All LCD Segments Light

(2) Test mode 1 (C1)

This mode is used to check the operation (contact) of tact key switches. When a tact key switch is pressed, the name of the switch pressed is displayed in the level meter as shown in Figure-2. If no display appears when a tact key switch is pressed, the tact switch is defective or the pattern between the microprocessor and the tact key switch is cut.

＊Simultaneous pressing of two or more tact key switches is not checked in this mode.

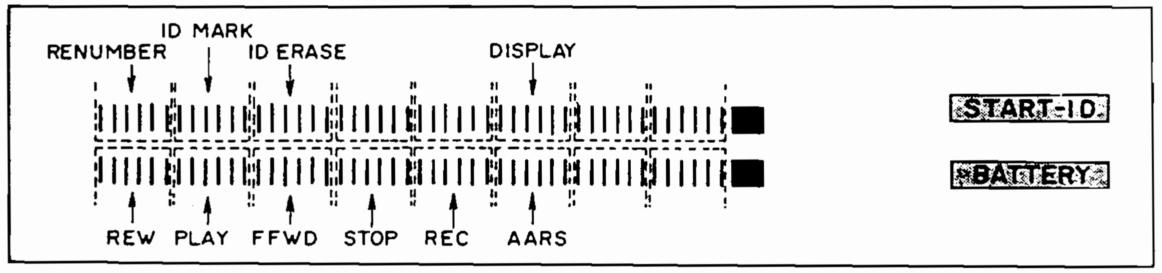


Fig-2 Display Position in Test Mode 1

(3) Test mode 2 (C2)

This is a tape path adjustment mode for in the PLAY mode.

(4) Test mode 3 (C3)

This mode is used to check the error rate in the play mode. The error rate is displayed in the counter. Table 1 shows the error rate values. Normally, "0500" is displayed, but "9900" is displayed when the heads are dirty, etc. This mode also allows the checking of the wear of tape to some extent.

Display	Block error rate per track	Display	Block error rate per track
0500	0.00~0.05	5500	0.50~0.55
1200	0.06~0.12	6200	0.56~0.62
1800	0.13~0.18	6800	0.63~0.68
2400	0.19~0.24	7400	0.69~0.74
3000	0.25~0.30	8000	0.75~0.80
3700	0.31~0.37	8700	0.81~0.87
4300	0.38~0.43	9300	0.88~0.93
4900	0.44~0.49	9900	0.94~1.00

Table 1 Error Rate

(5) Test mode 4 (C4)

This mode is used when servicing and displays the internal microprocessor mode and mechanism switch state necessary for servicing.

- Information on mechanism switches

The state of each switch is displayed in the L-ch level meter as shown in Figure-3.

① Cassette compartment lock detection switch (SW4 on Main C.B) ----- ON/OFF

② Tape width detection switch (S1-2 in mechanism) ----- Normal/1.5× speed

③ Cassette-in detection switch (S2-1 in mechanism) ----- Cassette Yes/No

④ REC ENABLE detection switch (S2-2 mechanism) ----- REC enable/Inhibit

⑤ Recorded tape detection switch (S2-3 in mechanism) ----- Normal/Recorded tape

⑥ KEY HOLD detection switch (SW404 on DIGITAL C.B) ----- ON/OFF

⑦ INPUT SELECT switch (SW405 on DIGITAL C.B) ----- DIGITAL/ANALOG

- Internal microprocessor mode

The internal microprocessor data is displayed in the counter as shown in Figure-4. (See Table 2)

① Command ----- Displays the command accepted by the key input (see Table 3).

② Mechanism mode -- Displays the mode in which the mechanism is set and changes when the mode shift is completed (see Table 3).

③ Mechanism position ----- Displays the position of the MODE switch (rotary encoder)(see Table 4).

④ CAUTION ----- Displays the abnormal point during CAUTION (see Table 5).

⑤ End sensor ----- Displays the detection status of start or end of tape (see Table 6).

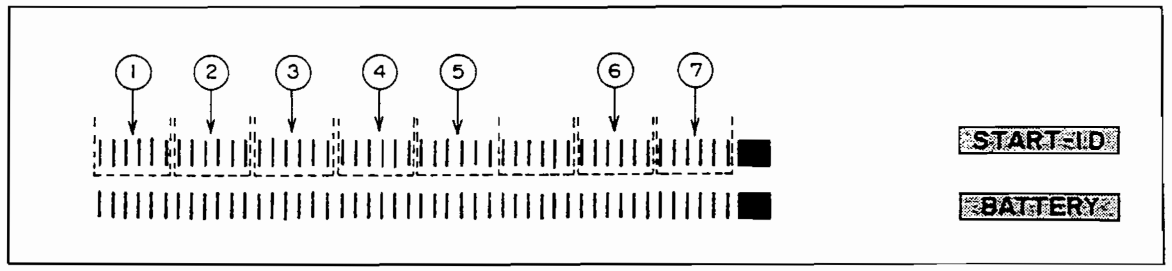


Fig-3 Display Positions in Test Mode 4
(Information on Mechanism Switches)

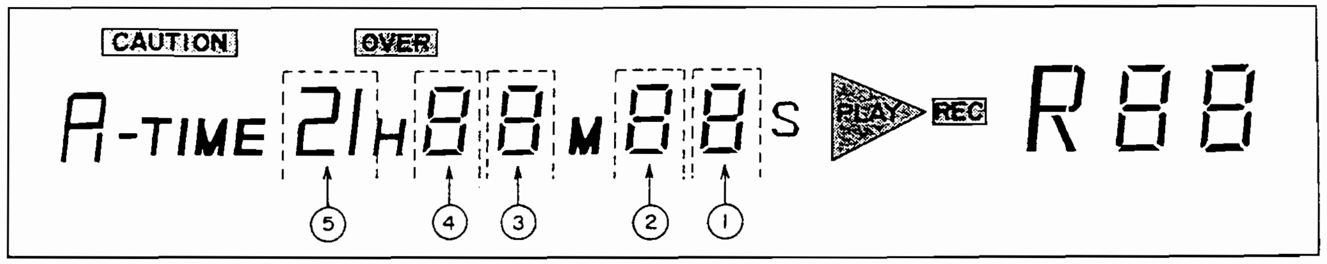


Fig-4 Display Positions in Test Mode 4
(Internal Microprocessor Mode)

State/Display Position	④	③	②	①
Cassette lid opened	0	5	1	1
Sledding (cassette in)	0	0	0	1
Unsledding (EJECT)	0	0	0	0
STOP	0	2	1	1
PLAY	0	8	2	2
FFWD	0	2	3	3
REW	0	2	4	4
F/SKIP	0	2	3	5
B/SKIP	0	2	4	6

Table 2 Example of Display of Internal Microprocessor Mode

Code	Display	Command	Mechanism Mode
0	0	EJECT	LOAD/EJECT
1	1	STOP	STOP
2	2	PLAY	FWD×1
3	3	FFWD	FFWD
4	4	REW	REW
5	5	F-SKIP	
6	6	B-SKIP	
7	7	END SEARCH	
8	8		PAUSE
9	9		FWD×16 FWD×2
A	—		SLOW-REW
C	C	ID ERASE	
D	d	RENUMBER	
E	n	REC	
F	F	REC PLAY	

Table 3 Display of Commands and Mechanism Mode (①,②)

Code	Display	Mechanism Position	Mechanism Operation
8	8	PLAY	FWD/ PAUSE
2	2	STOP	STOP, FF/REW
9	9	LOADEND	SOLENOID ON
5	5	UNLOAD	CASSETTE COMPARTMENT LOCK
3	3	EJECT	CASSETTE COMPARTMENT UP
0	0	——	INTERMEDIATE POSITION

Table 4 Display of Mechanism Mode (③)

Code	Display	Cause of Abnormally Stop
0	0	No abnormally
1	1	Reel rotation abnormally
2	2	Drum rotation abnormally or DEW sensor detection abnormally
3	3	Sledding operation abnormally

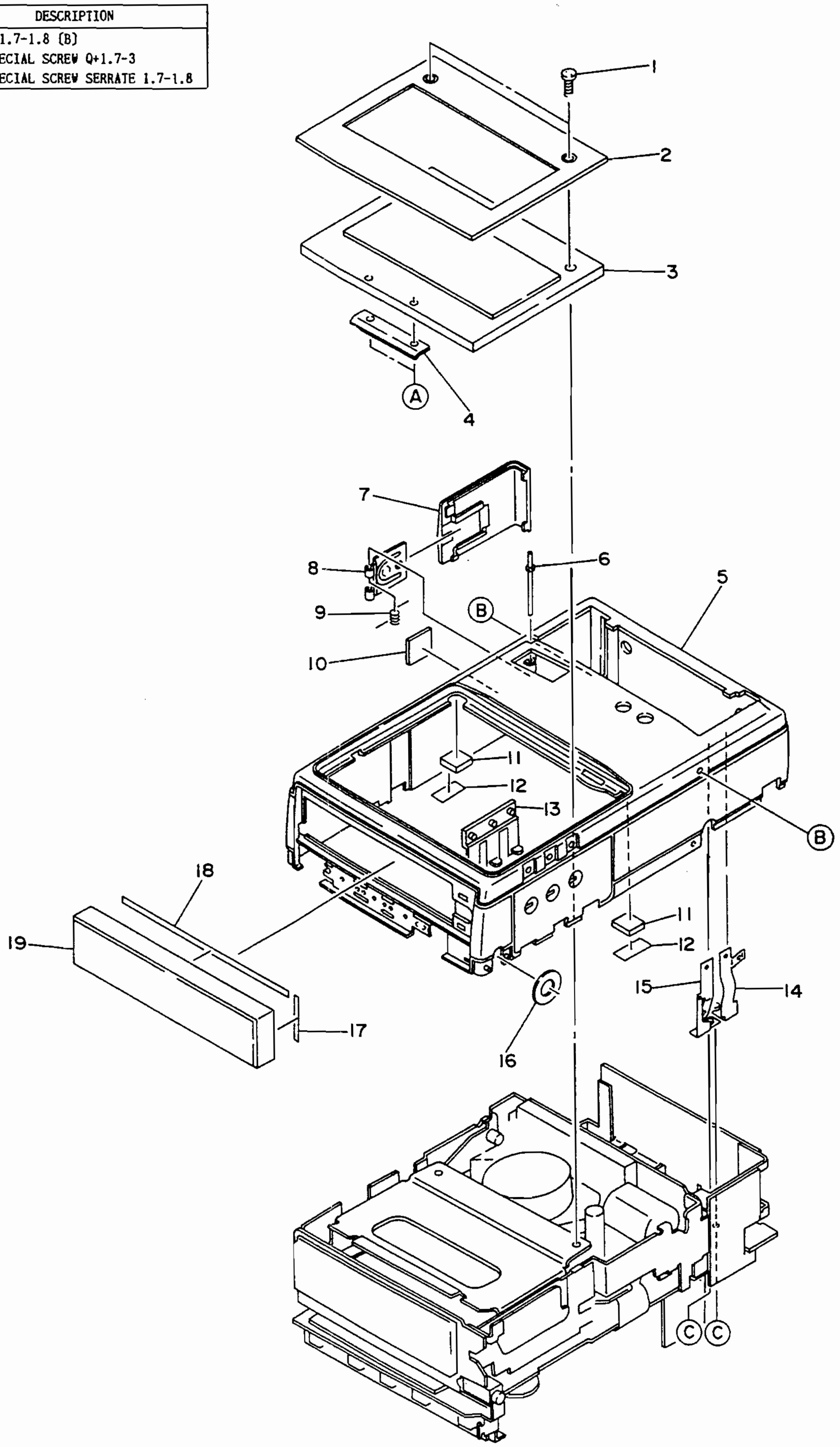
Table 5 Display of CAUTION (④)

Code	Display	Detection
1	1	Tape start detection
2	2	Tape end detection

Table 6 Display of End Sensors (⑤)

EXPLODED VIEW – 1

REF.NO.	PART NO.	DESCRIPTION
A	87-264-522-310	V+1.7-1.8 (B)
B	87-233-527-310	SPECIAL SCREW Q+1.7-3
C	87-067-710-010	SPECIAL SCREW SERRATE 1.7-1.8

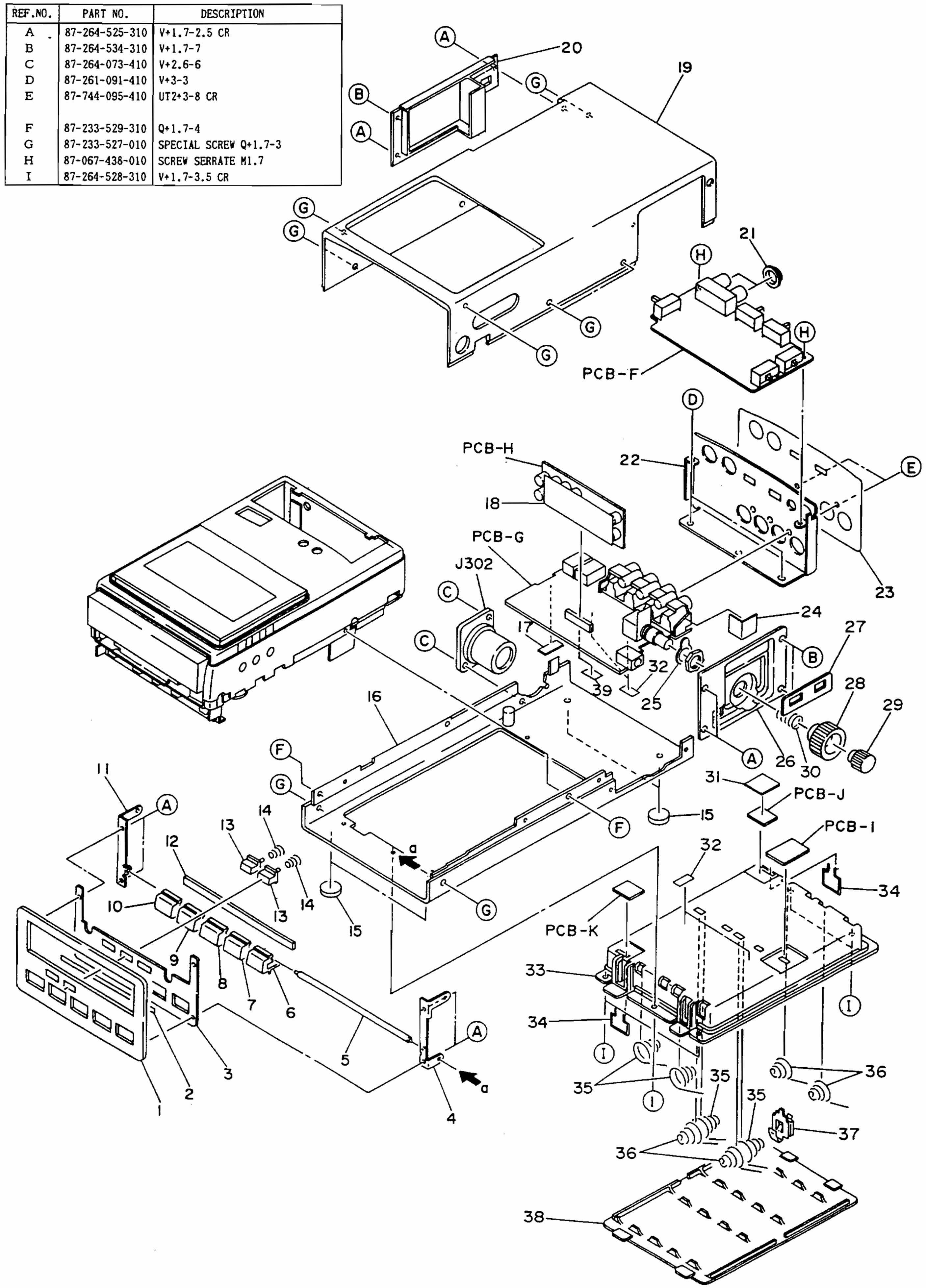


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	1-1	★80-HD4-024-010	S-SCREW, DECORATIVE	*	2
	1-2	★80-HD3-010-010	PANEL, CASSETTE N		1
	1-3	★80-HD4-014-010	WINDOW, CASSETTE	*	1
	1-4	★80-HD4-214-010	HOLDER, WINDOW	*	1
	1-5	★80-HD4-019-110	CABINET, MAIN N	*	1
	1-6	★89-HD1-225-010	SHAFT, LID		1
	1-7	★80-HD4-020-010	LID, BATTERY N	*	1
	1-8	★89-HD1-224-110	LEVER, LID		1
	1-9	★80-HD4-220-010	T-SPRING, LID	*	1
	1-10	★80-HD4-224-010	SHEET, 10-10	*	1
	1-11	★89-HD1-263-210	S-CUSHION, CABINET		1
	1-12	★89-HD1-270-010	CLOTH, 5-11		2
	1-13	★80-HD4-028-010	HIGE, B N	*	1
	1-14	★89-HD1-236-210	BATTERY CONTACT + ASSY		1
	1-15	★89-HD1-237-310	BATTERY CONTACT - ASSY		1
	1-16	★80-HD4-029-010	SHEET, HP	*	1
	1-17	★89-HD1-253-010	ADHESIVE SHEET, R		1
	1-18	★89-HD1-252-010	ADHESIVE SHEET, L		1
	1-19	★80-HD3-009-010	WINDOW, FRONT N		1

EXPLODED VIEW – 2

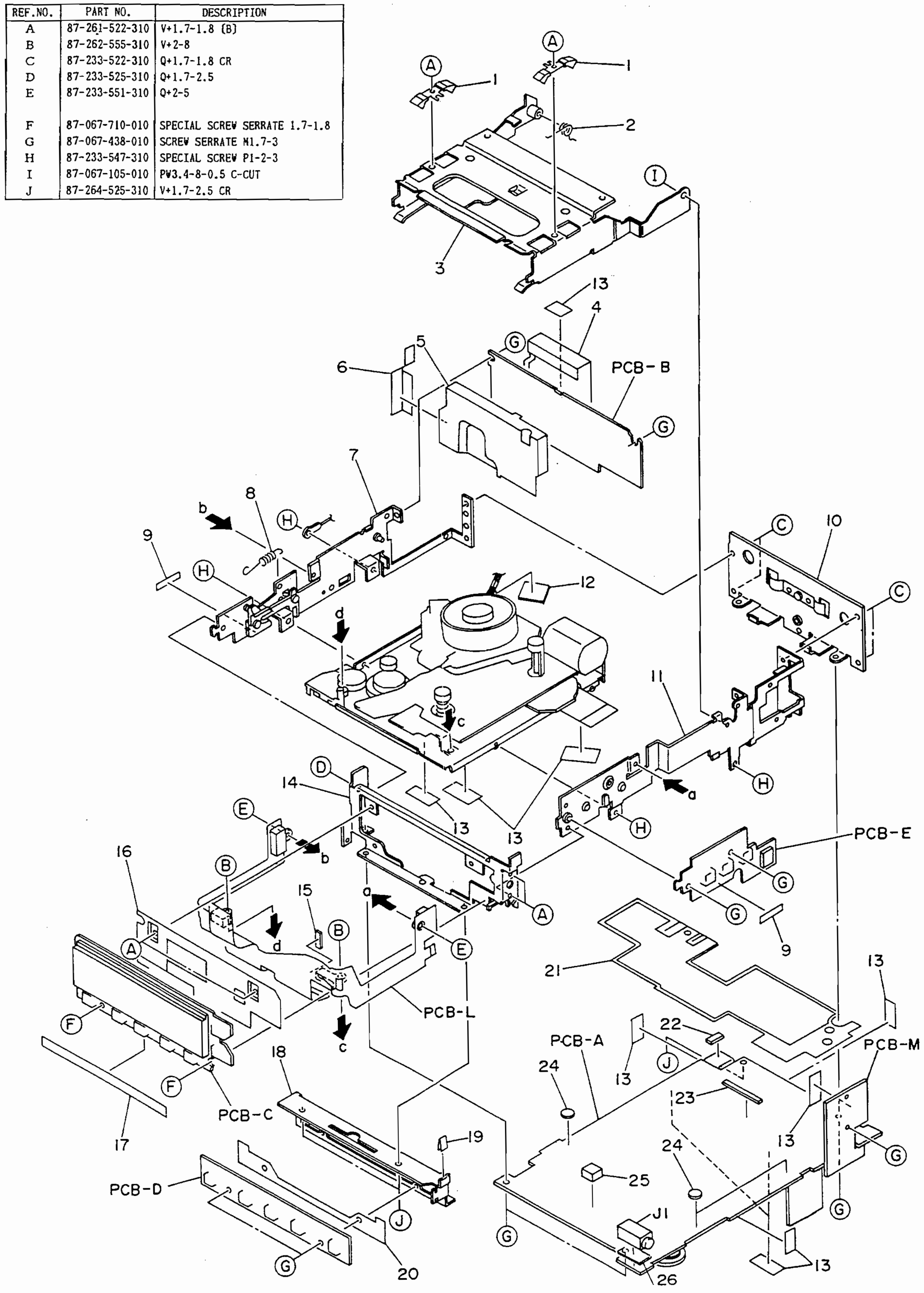
REF.NO.	PART NO.	DESCRIPTION
A	87-264-525-310	V+1.7-2.5 CR
B	87-264-534-310	V+1.7-7
C	87-264-073-410	V+2.6-6
D	87-261-091-410	V+3-3
E	87-744-095-410	UT2+3-8 CR
F	87-233-529-310	Q+1.7-4
G	87-233-527-010	SPECIAL SCREW Q+1.7-3
H	87-067-438-010	SCREW SERRATE M1.7
I	87-264-528-310	V+1.7-3.5 CR



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	2-1	★80-HD4-003-010	PANEL, FRONT 4	*	1
	2-2	★89-HD1-252-010	ADHESIVE-SHEET, L		1
	2-3	★80-HD4-207-010	SHEET, FRONT	*	1
	2-4	★80-HD4-204-010	HOLDER, R	*	1
	2-5	★80-HD4-205-010	SHAFT, PUSH SW	*	1
	2-6	★80-HD4-005-010	BUTTON, REC	*	1
	2-7	★80-HD4-006-010	BUTTON, STOP	*	1
	2-8	★80-HD4-007-010	BUTTON, FF	*	1
	2-9	★80-HD4-008-010	BUTTON, PLAY	*	1
	2-10	★80-HD4-009-010	BUTTON, REW	*	1
	2-11	★80-HD4-203-010	HOLDER, L	*	1
	2-12	★80-HD4-222-010	CUSHION, KEY	*	1
	2-13	★80-HD4-010-010	BUTTON DISPLAY ASSY	*	2
	2-14	★80-HD4-206-010	SPRING, SW	*	2
	2-15	★80-HD4-023-110	FOOT	*	4
	2-16	★80-HD4-033-010	PANEL BOTTOM 4 ASSY	*	1
	2-17	★80-HD2-210-010	SHEET, EL B		1
	2-18	★80-HD4-225-010	SHEET, MIC	*	1
	2-19	★80-HD4-001-110	PANEL, TOP 4	*	1
	2-20	★80-HD4-013-010	PANEL, BATTERY	*	1
	2-21	★80-HD4-218-010	COLLAR	*	2
	2-22	★80-HD4-201-010	CHASSIS, REAR	*	1
	2-23	★80-HD4-017-010	JACK, PLATE 4	*	1
	2-24	★80-HD2-211-010	SHEET, LINE		1
	2-25	★80-HD4-226-010	SHEET, CU	*	1
	2-26	★80-HD4-012-010	PANEL, VOLUME 4	*	1
	2-27	★80-HD4-027-010	SHEET, VOLUME 4	*	1
	2-28	★80-HD4-015-010	KNOB, VOLUME A	*	1
	2-29	★80-HD4-016-010	KNOB, VOLUME B	*	1
	2-30	---	C-SPRING, VOLUME		1
	2-31	★80-HD4-219-010	SHEET, FBER	*	1
	2-32	---	HIMERON, 7-14		4
	2-33	★80-HD4-026-210	BOX BATTERY ASSY	*	1
	2-34	★80-HD4-210-010	BATTERY CONTACT+	*	2
	2-35	★80-HD4-215-110	C-SPRING, BATTERY CONTACT	*	4
	2-36	★80-HD4-217-110	C-SPRING, BATTERY CONTACT 2	*	4
	2-37	★80-HD4-227-010	BATTERY, CONTCT-	*	1
	2-38	★80-HD4-022-010	LID, BATTERY	*	1
	2-39	★80-HD2-206-010	G-CUSHION, 7-7		1

EXPLODED VIEW – 3

REF.NO.	PART NO.	DESCRIPTION
A	87-261-522-310	V+1.7-1.8 (B)
B	87-262-555-310	V+2-8
C	87-233-522-310	Q+1.7-1.8 CR
D	87-233-525-310	Q+1.7-2.5
E	87-233-551-310	Q+2-5
F	87-067-710-010	SPECIAL SCREW SERRATE 1.7-1.8
G	87-067-438-010	SCREW SERRATE M1.7-3
H	87-233-547-310	SPECIAL SCREW PI-2-3
I	87-067-105-010	PW3.4-8-0.5 C-CUT
J	87-264-525-310	V+1.7-2.5 CR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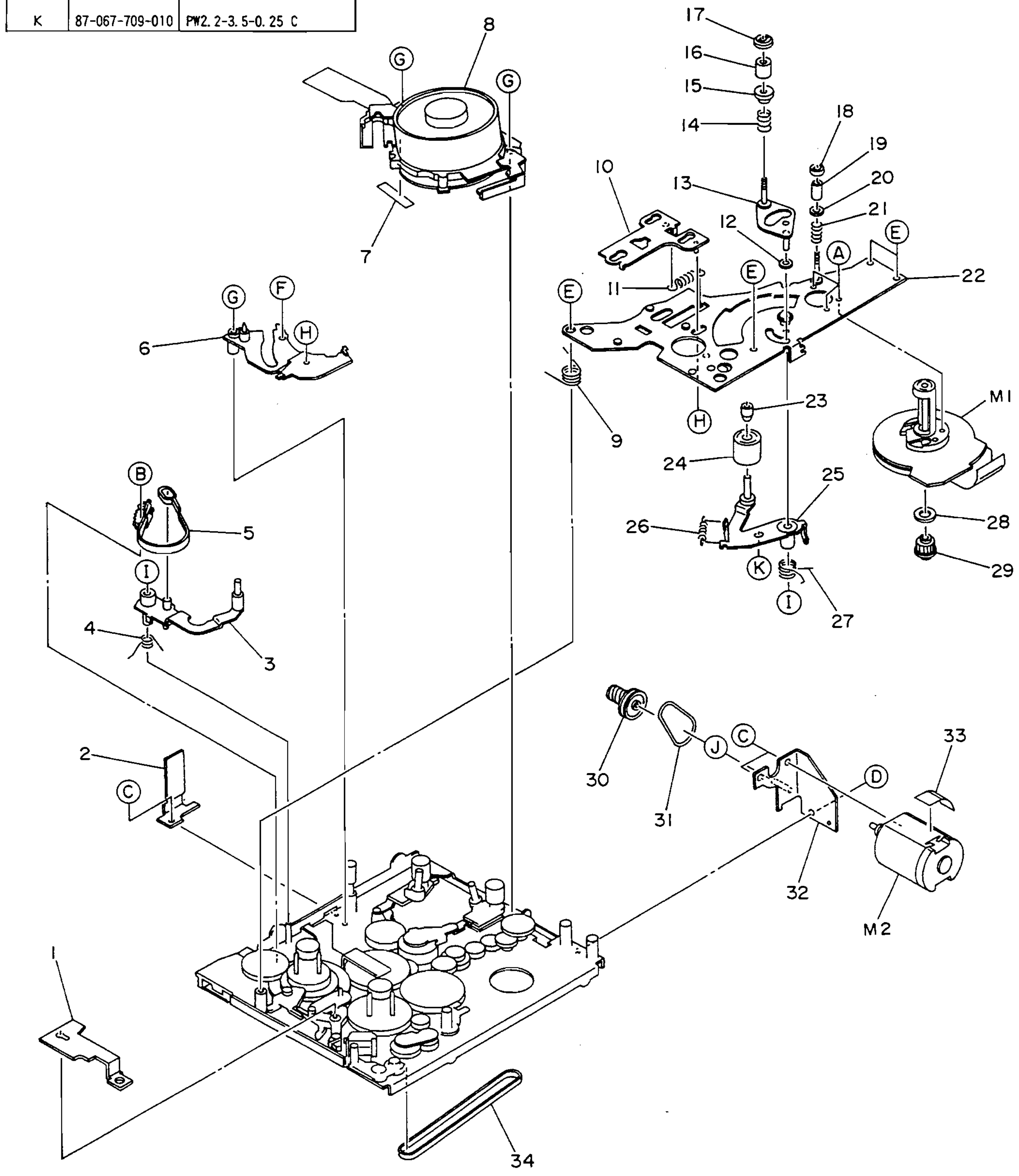
PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q, TY
	3-1	★89-HD1-217-110	P-SPRING CASSETTE ASSY		2
	3-2	★89-HD1-219-210	T-SPRING, CASSETTE BOX		1
	3-3	★89-HD1-201-210	BOX CASSETTE ASSY		1
	3-4	★89-HD1-242-310	SHEET, RF B		1
	3-5	★89-HD1-229-110	COVER, SHIELD		1
	3-6	★89-HD1-264-110	SHEET, RF D		1
	3-7	★89-HD1-205-510	FRAME CHASSIS L ASSY		1
	3-8	★89-HD1-220-010	E-SPRING, LEVER LOCK		1
	3-9	★89-HD1-253-010	ADNESIVE SHEET, S		2
	3-10	★89-HD1-231-210	FRAME CHASSIS REAR ASSY		1
	3-11	★89-HD1-214-310	FRAME CHASSIS R ASSY		1
	3-12	★89-HD1-269-010	SHEET, RF F		1
	3-13	---	HIMERON, 7-14		8
	3-14	★89-HD1-221-010	FRAME, CHASSIS FRONT		1
	3-15	★89-HD1-256-010	G-CUSHION, 2.5-7-1		1
	3-16	★89-HD1-243-110	SHEET, FRONT		1
	3-17	★89-HD1-251-010	CLOTH, LCD		1
	3-18	★80-HD4-202-010	CHASSIS, FRONT 4	*	1
	3-19	★80-HD2-215-010	SHEET, PT		1
	3-20	★80-HD4-221-110	SHEET, KEY	*	1
	3-21	★89-HD1-241-110	SHEET, RF A		1
	3-22	★89-HD1-266-010	H-CUSHION, 3-8.5-3		1
	3-23	★89-HD1-259-010	G-CUSHION, 2-20-0.5		1
	3-24	★89-HD1-244-010	SHEET, DIA 5-0.3		3
	3-25	★89-HD1-247-010	G-CUSHION, 6-6-4		1
	3-26	★80-HD2-216-010	SHEET, JACK 2		1

EXPLODED VIEW – 4

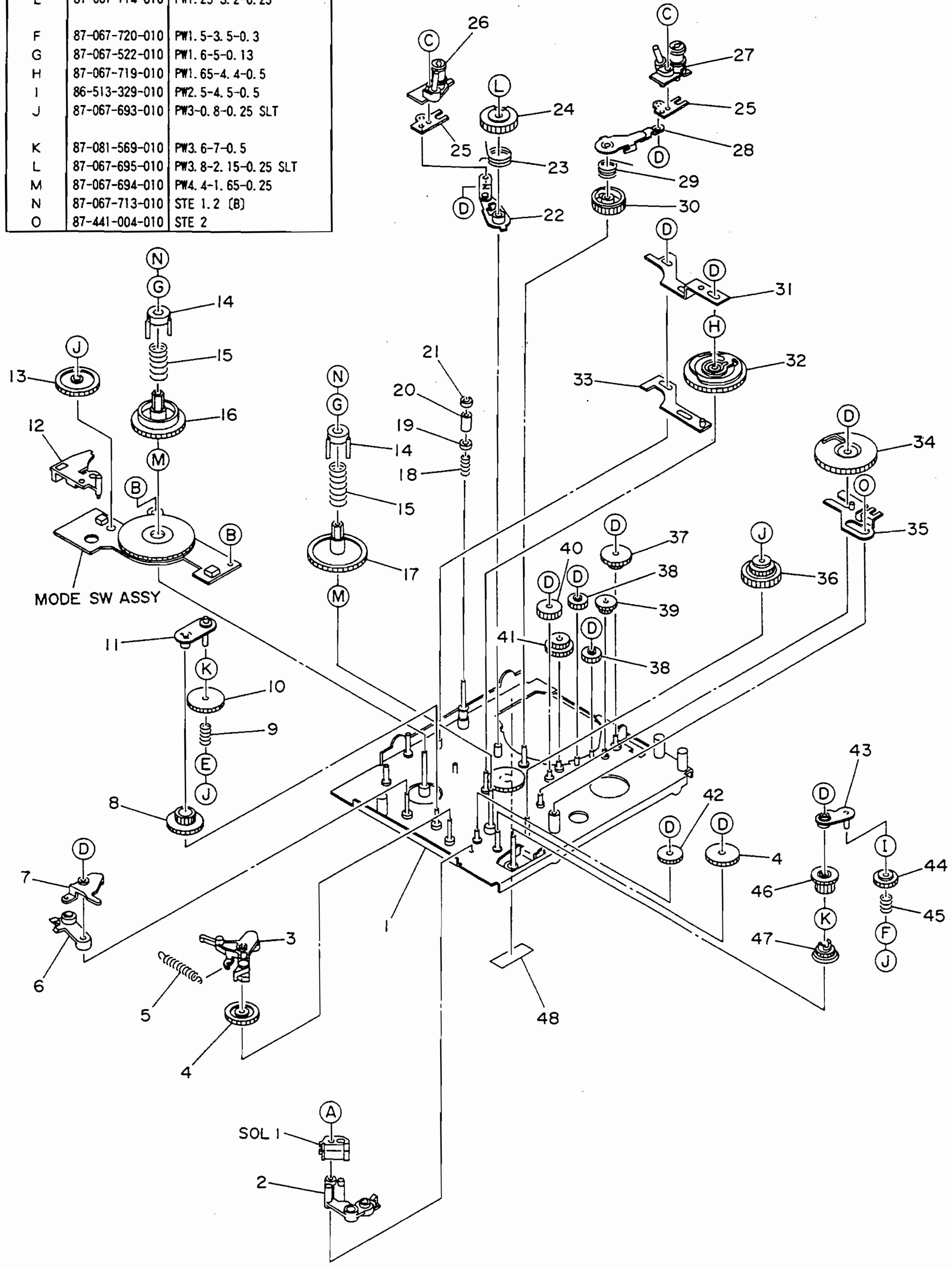
REF. NO.	PART NO.	DESCRIPTION
A	87-263-503-310	V+1. 4-2. 0
B	87-262-505-310	V+1. 4-2. 5 (B)
C	87-263-522-310	V+1. 7-1. 8
D	87-263-527-310	V+1. 7-3
E	87-067-708-010	V+1. 7-3. 5 (B)
F	87-067-692-010	V+1. 7-7 (B)
G	87-267-555-310	V+2-8 (B)
H	87-081-945-010	PW1. 2-3-0. 25
I	86-544-440-010	PW1. 2-4-0. 25 SLT
J	87-067-697-010	PW1. 7-3-0. 5
K	87-067-709-010	PW2. 2-3. 5-0. 25 C



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	4-1	★86-571-275-010	PLATE, SOLENOIDE		1
	4-2	★86-571-440-010	LID OPNER S		1
	4-3	★86-571-282-010	LEVER TENSION REGULATOR ASSY		1
	4-4	★86-571-419-010	T-SPRING, TENSION REGULATOR		1
	4-5	★86-571-397-010	BAND BRAKE ASSY		1
	4-6	★86-571-210-010	CHASSIS, MULD		1
	4-7	★86-571-402-010	SHEET, DRUM		1
	4-8	86-571-603-010	DRUM ASSY		1
	4-9	★86-571-418-010	T-SPRING, SOFT		1
	4-10	★86-571-205-010	PLATE ASSY FR		1
	4-11	★86-571-421-010	E-SPRING, FR		1
	4-12	★86-067-715-010	SHEET, 2. 15-5-0. 35		1
	4-13	★86-571-284-010	LEVER GUIDE ASSY		1
	4-14	★86-571-416-010	C-SPRING, GUIDE D		1
	4-15	★86-571-299-010	GUIDE, UT FLANGE		1
	4-16	★86-571-312-010	LEVER, GUIDE ROLLOR		1
	4-17	★86-571-300-010	FLANGE, LT GUIDE		1
	4-18	★86-571-293-010	FLANGE, UL GUIDE		1
	4-19	★86-571-295-010	ROLLOR, GUIDE L		1
	4-20	★86-571-294-010	FLANGE, GUIDE LL		1
	4-21	★86-571-413-010	C-SPRING, GUIDE		1
	4-22	★86-571-203-010	CHASSIS SUB ASSY		1
	4-23	★86-544-288-010	COLOR B, PINCH ROLLOR		1
	4-24	86-544-289-010	PINCH ROLLOR ASSY		1
	4-25	★86-571-271-010	LEVER PINCH ASSY		1
	4-26	★86-571-410-010	E-SPRING, PINCH		1
	4-27	★86-571-417-010	T-SPRING, PINCH		1
	4-28	★86-571-446-010	FLANGE, CAPSTAN		1
	4-29	★86-571-250-010	PULLEY, CAPSTAN		1
	4-30	★86-571-215-010	WORM, SLED		1
	4-31	★86-571-396-010	BELT, MOTOR		1
	4-32	★86-571-298-010	HOLDER MOTOR ASSY		1
	4-33	★86-550-404-010	CLOTH, 6-15		1
	4-34	86-571-399-010	BELT, TIMING		1

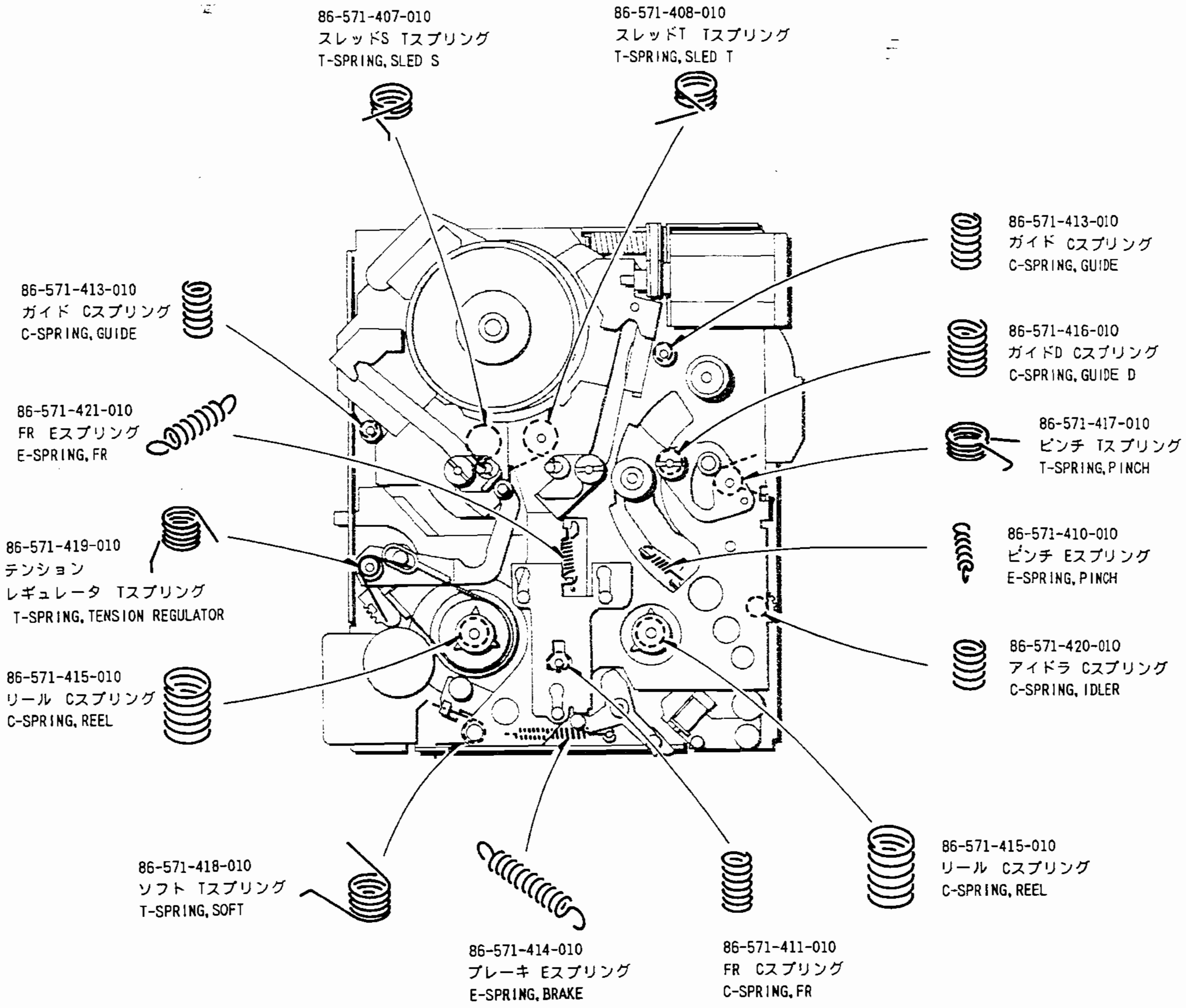
EXPLODED VIEW – 5

REF. NO.	PART NO.	DESCRIPTION
A	87-264-514-310	V+1. 4-7
B	87-263-525-010	V+1. 7-2. 5
C	87-261-529-310	V+1. 7-4 (B)
D	87-081-945-010	PW1. 2-3-0. 25
E	87-067-714-010	PW1. 25-3. 2-0. 25
F	87-067-720-010	PW1. 5-3. 5-0. 3
G	87-067-522-010	PW1. 6-5-0. 13
H	87-067-719-010	PW1. 65-4. 4-0. 5
I	86-513-329-010	PW2. 5-4. 5-0. 5
J	87-067-693-010	PW3-0. 8-0. 25 SLT
K	87-081-569-010	PW3. 6-7-0. 5
L	87-067-695-010	PW3. 8-2. 15-0. 25 SLT
M	87-067-694-010	PW4. 4-1. 65-0. 25
N	87-067-713-010	STE 1. 2 (B)
O	87-441-004-010	STE 2



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q. TY
	5-1	★86-571-201-010	CHASSIS ASSY MAIN		1
	5-2	★86-571-259-010	T-HOLDER SW		1
	5-3	★86-571-309-010	LEVER ASSY T BRAKE		1
	5-4	★86-571-236-010	GEAR, FF A		2
	5-5	★86-571-414-010	E-SPRING, BRAKE		1
	5-6	★86-571-297-010	LEVER ASSY SLED BRAKE		1
	5-7	★86-571-310-010	LEVER ASSY S BRAKE		1
	5-8	★86-571-232-010	GEAR FR A		1
	5-9	★86-571-411-010	C-SPRING, FR		1
	5-10	★86-571-233-010	GEAR FR B		1
	5-11	★86-571-296-010	LEVER ASSY FR		1
	5-12	★86-571-258-010	HOLDER S SW		1
	5-13	★86-571-392-010	GEAR ASSY FG		1
	5-14	★86-571-253-010	CAP, REEL		2
	5-15	★86-571-415-010	C-SPRING, REEL		2
	5-16	86-571-230-010	TABLE, REEL S		1
	5-17	86-571-391-010	TABLE ASSY REEL		1
	5-18	★86-571-413-010	C-SPRING, GUIDE		1
	5-19	★86-571-294-010	FLANGE, GUIDE LL		1
	5-20	★86-571-295-010	ROLLOR, GUIDE L		1
	5-21	★86-571-293-010	FLANGE, GUIDE UL		1
	5-22	★86-571-281-010	ARM ASSY SLED S		1
	5-23	★86-571-407-010	T-SPRING, SLED S		1
	5-24	★86-571-223-010	GEAR, SLED H		1
	5-25	★86-571-265-010	SHATOL PLATE ASSY		2
	5-26	★86-571-243-010	SHATOL ASSY S		1
	5-27	★86-571-244-110	SHATOL ASSY T		1
	5-28	★86-571-280-010	ARM SLED T ASSY		1
	5-29	★86-571-408-010	T-SPRING, SLED T		1
	5-30	★86-571-222-010	GEAR, SLED G		1
	5-31	★86-571-283-010	PLATE CASSETTE ASSY		1
	5-32	★86-571-235-010	CAM B		1
	5-33	★86-571-207-010	PLATE ASSY TENSION R		1
	5-34	★86-571-234-010	CAM A		1
	5-35	★86-571-211-010	PLATE ASSY PINCH		1
	5-36	★86-571-214-010	GEAR TUP ASSY		1
	5-37	★86-571-216-010	WORM WHEEL, SLED		1
	5-38	★86-571-217-010	GEAR B, SLED		2
	5-39	★86-571-238-010	GEAR A, SLED		1
	5-40	★86-571-220-010	GEAR E, SLED		1
	5-41	★86-571-219-010	GEAR D, SLED		1
	5-42	★86-571-237-110	GEAR B, FF		1
	5-43	★86-571-256-010	LEVER ASSY IDRER		1
	5-44	★86-571-227-010	GEAR A, IDRER		1
	5-45	★86-571-420-010	C-SPRING, IDRER		1
	5-46	★86-571-228-010	GEAR B, IDRER		1
	5-47	★86-571-242-010	PULLEY, IDRER		1
	5-48	★86-571-402-010	SHEET, DRUM		

SPRING APPLICATION POSITION


86-571-407-010
スレッドS Tスプリング
T-SPRING, SLED S
86-571-408-010
スレッドT Tスプリング
T-SPRING, SLED T
86-571-413-010
ガイド Cスプリング
C-SPRING, GUIDE
86-571-416-010
ガイドD Cスプリング
C-SPRING, GUIDE D
86-571-413-010
ガイド Cスプリング
C-SPRING, GUIDE
86-571-421-010
FR Eスプリング
E-SPRING, FR
86-571-417-010
ピンチ Tスプリング
T-SPRING, PINCH
86-571-419-010
テンション
レギュレータ Tスプリング
T-SPRING, TENSION REGULATOR
86-571-410-010
ピンチ Eスプリング
E-SPRING, PINCH
86-571-420-010
アイドラ Cスプリング
C-SPRING, IDLER
86-571-415-010
リール Cスプリング
C-SPRING, REEL
86-571-418-010
ソフト Tスプリング
T-SPRING, SOFT
86-571-414-010
ブレーキ Eスプリング
E-SPRING, BRAKE
86-571-411-010
FR Cスプリング
C-SPRING, FR
86-571-415-010
リール Cスプリング
C-SPRING, REEL

■ ACCESSORIES／PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q.TY
	1	★80-HD4-904-010	INSTRUCTION BOOKLET	※	1
	2	★80-HD1-615-010	PB－25		1
	3	★80-HD4-952-010	BAG,CARRING 4 N	※	1
	4	★80-HD4-611-110	CORD,CANNON 5P 3P	※	1
	5	★80-HD4-630-010	AC ADAPTOR,AC－748E	※	1